STOCK CERTIFICATES
ART AND HISTORY

PETER JONES

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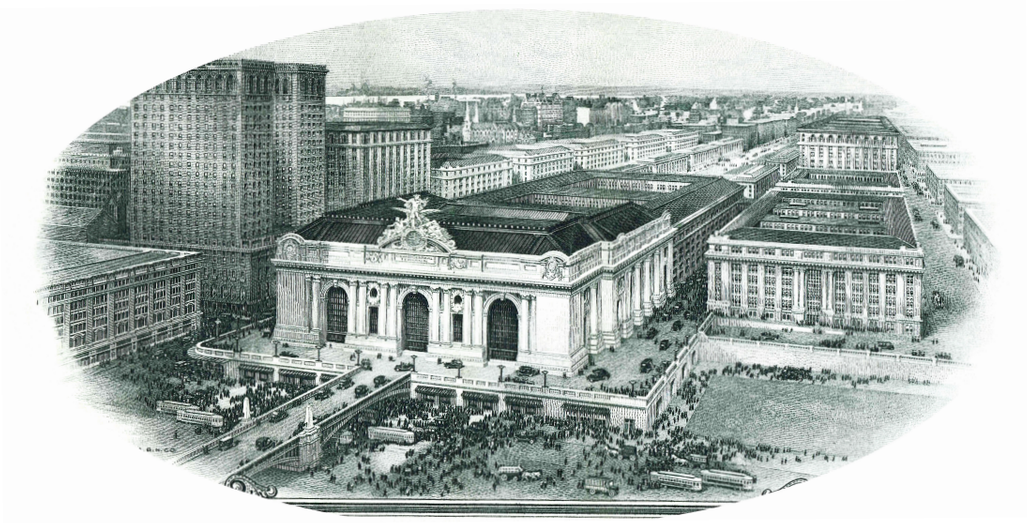
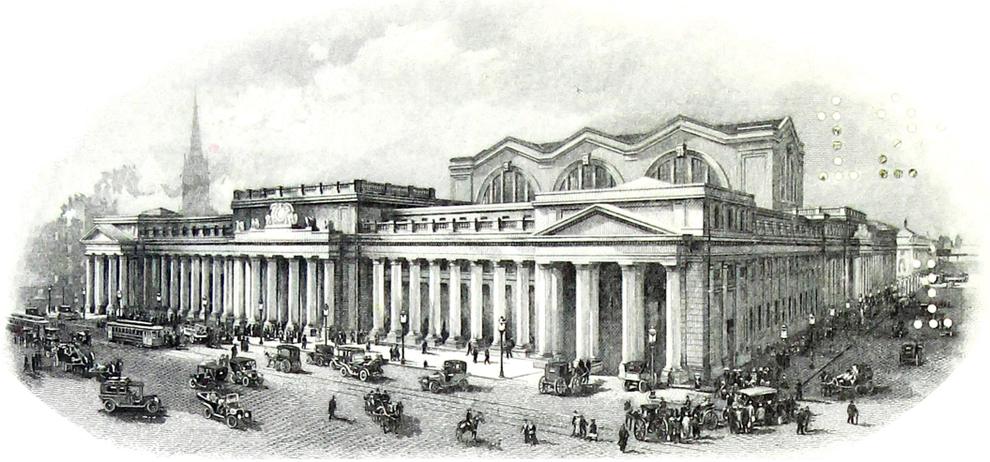


GRAND CENTRAL STATION FROM NY CENTRAL RR 1913 MORTGAGE BOND



PENN CENTRAL STATION FROM PENNSYLVANIA RR 1934 MORTGAGE BOND

PETER JONES

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Fabrica de Faianças
das
Caldas da Rainha
Sociedade anonyma
Responsabilidade limitada
Capital reis 400:000$000
1.ª Serie reis 120:000$000
Titulo de uma acção N.º 1125
Reis 20$000
Pertence a
Manuel Antonio
Moreira da Silva Jor
Lisboa 30 de junho de 1884
Gerente
Membro do conselho fiscal
LITH-GUEDES. LISBOA

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DEDICATION

To my wife, Ann, who has patiently withstood my serial addictions to the demands of medical practice, magic, classical piano playing, an MBA, flamenco guitar lessons, classical guitar playing, hammered dulcimer, and all the way along, numismatics and paper money collecting.

To my three daughters, violinist Ashley, architect Rebecca, and photographer Alexandra, who have also put up with my same addictions.

To the American Numismatic Association — an important organization that has fostered my lasting curiosity about everything. To them, I owe my numismatic education.

If you would like a copy of this book, please visit:

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QR code for booksoncoins.com

PREFACE

Welcome to the fascinating world of scripophily: where history, art, and finance collide!

Imagine holding a piece of financial history in your hands — a beautifully engraved stock certificate from a long-defunct railroad company, or a bond signed by a financier of the American Revolution. This is the captivating realm of scripophily, where collectors hunt for these paper treasures that tell the stories of bygone eras and economic booms and busts.

While there may only be about 40,000 enthusiasts worldwide, this niche hobby packs a punch when it comes to intrigue and visual appeal. Think of it as a time machine that transports you through the annals of financial history, all while admiring exquisite artwork that adorned these financial instruments.

From the lavish Art Nouveau designs of Alphonse Mucha to the sleek Art Deco motifs of the Roaring Twenties, these certificates are more than just financial documents — they are miniature masterpieces. And let's not forget the thrill of owning a piece signed by a titan of industry like John D. Rockefeller or a certificate from an infamous scandal like the South Sea Bubble, or John Law’s Mississippi Company.

Scripophily isn't just for history buffs or finance geeks. It's for anyone who appreciates the intersection of art, history, and the human drama behind booms, busts, and daring economic ventures. Whether you're drawn to the intricate engravings, the stories of railroad empires, or the autographs of business legends, there's something in scripophily to capture everyone's imagination.

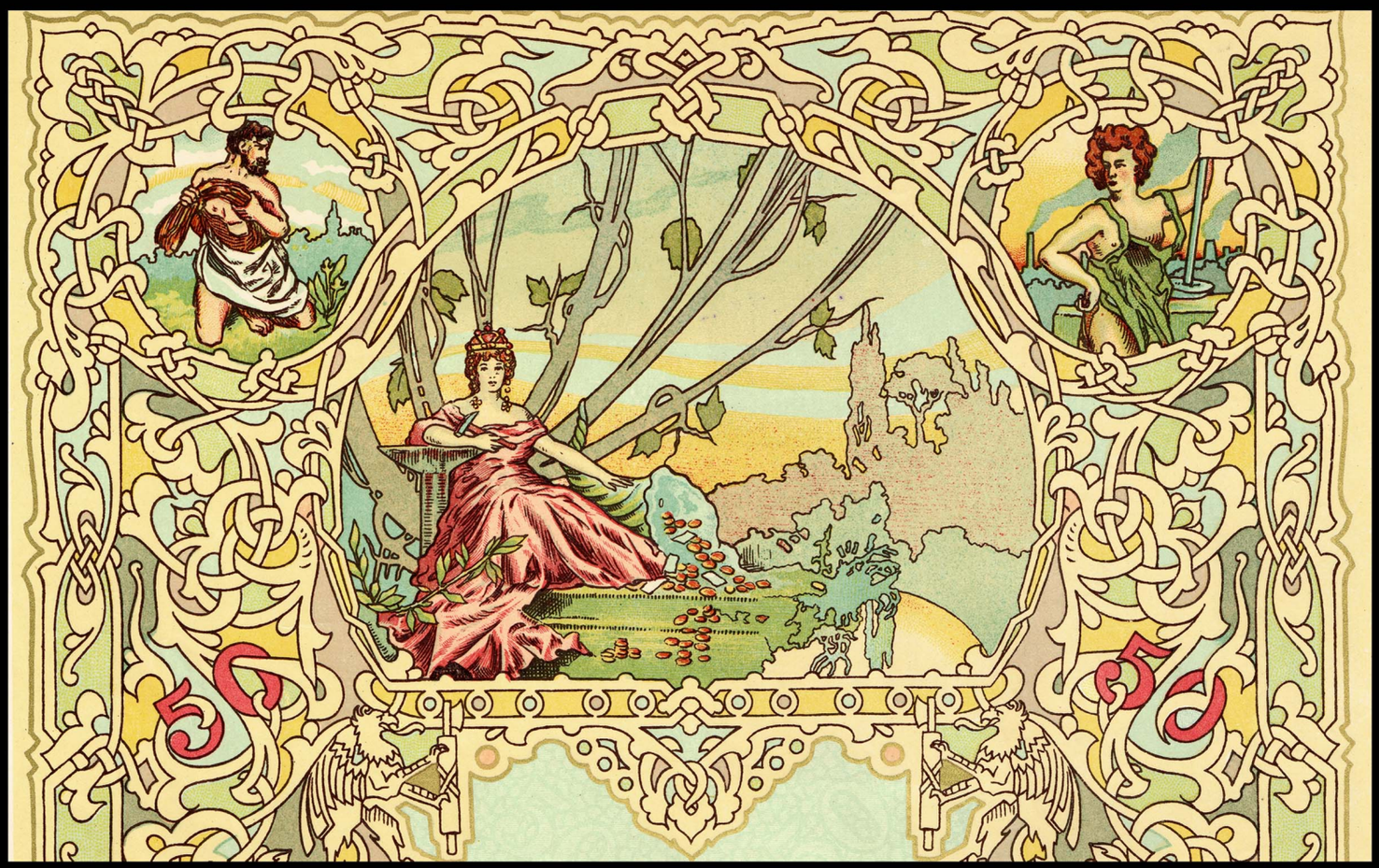
So, buckle up as we embark on a journey through time, exploring the colorful world of stocks, bonds, and other financial ephemera. Who knows? You might just find yourself joining the ranks of scripophilists, proudly displaying framed certificates that are conversation starters and windows into our economic past. Let's dive in and discover the hidden gems of this fascinating hobby!

But as you look at each certificate, please give it more than just a glance. Ask yourself:

- How did it symbolize the company’s aspirations?
- How did it appeal to an investor?
- What was the artist trying to communicate?

All internet references were accessed in 2024 and 2025.

Peter Jones



DETAIL OF PEOPLE'S BANK CERTIFICATE BY IVAN LAZROV

1

SCRIPOPHILY — WHAT IS IT?

Scripophily is a specialized field of numismatics, studying stocks, bonds, and other financial paper artifacts. Numismatics studies coins, currency, and related objects. The following shows how scripophily fits into the wider field of numismatics:

Numismatics

SOLID 1. coins
2. exonumia a. tokens and medals
b. other e.g. elongated cents, wooden nickels
PAPER 1. paper money (syngraphy)
2. exographia a. securities (scripophily)
b. other e.g. scrip, checks

Around 40,000 people collect stock certificates. There are around 50-100 stock certificate dealers, and 20 auction houses. These few pages of reading are technical about scripophily, so if you just want to see the art and interesting bits, please skip this chapter.

But as you look at each certificate, please give it more than just a glance. Ask yourself:

- How did it symbolize the company's aspirations?
- How did it appeal to an investor?
- What was the artist trying to communicate?

Numismatics and scripophily

Many famous people collected coins: Augustus Caesar, Petrarch, several Popes, Lorenzo de Medici, Louis XIV, George III, Thomas Jefferson, John Quincy Adams, Tolstoy, Enrico Caruso and King Farouk. They call it the "Hobby of Kings". King Victor Emanuel of Italy wrote a 20-volume book on Italian numismatics. Wayne Gretzky, James Earl Jones, and Nicole Kidman are contemporary coin collectors.

Joseph Eckhel wrote *Doctrina Numorum Veterum,* the first academic study of ancient coins in an eight-volume work from 1793 to 1799. This established numismatics as an academic subject in Europe. European Universities then established chairs of numismatics. But in America, there are no university departments of numismatics. The American Numismatic Association grants a diploma in numismatics, but this would only be equivalent to several university credits and is not a degree. A few US numismatists have pursued tailored numismatic degree programs, like Jonathan Kern and Don Kagin.

Some collectors have an interest in financial history and scripophily certainly fits the bill here. After the American Civil War (1861-1865), people started collecting Confederate States of America (CSA) currency and bonds. They were the first bond collectors. In 1880, Capt. Raphael Thian published, *Register of Confederate Debt* which included lists of CSA bonds. In 1961, Grover Criswell published a book on CSA currency which also listed CSA bonds.

Half a century ago in the 1970s, the number of collectors of securities reached a critical mass, perhaps fostered by an interest in financial history and art. The International Bond and Share Society (IBBS) started in 1978 after they coined the word "scripophily." *Scrip-* means financial ownership, and *-philos* means love of. The IBSS publishes the magazine *Scripophily* several times a year.

The IBSS website, scripophily.org, lists over 40 dealers, 22 auction houses, and around 230 books on scripophily. Worldwide auction sales of scripophily material were $4 million in 2023, excluding social media platforms and eBay. Dealers offered 35,000 lots, with a sell through rate of 47% at auction. The largest interest is in US and Germany. (Germany is surprising because German stock certificates are often artistically unappealing.)

Standard and Poor, and Moody have published manuals on US companies. Stock Exchanges have also published yearbooks, directories, and registers of companies now out of business. The Dictionary of American Biography also publishes information about US companies. The internet is rich with information about old companies and financial history. Some companies used to pay professional historians to document their history, but this is uncommon today.

Scripophily attracts those interested in history, especially financial and corporate history, but also government financial history. I got interested when I took a history of business course while studying for an MBA. Many art nouveau certificates make excellent framed pictures.

Scripophily is a hobby, not an investment. Although items create a store of value, future prices are unpredictable.

Today, scripophily includes several types of securities: stocks, bonds, promissory notes, indentures, bills of exchange, and other financial paper artifacts. Scripophily can also blend into autograph collecting (philography).

History of scripophily

In the 900s in Amalfi, Italy, entrepreneurs promoted sailing ventures with tradable shares. Later, this became a common practice in Venice. The earliest incorporated joint stock company was Stora Kopparberg Berslags, a Swedish copper mine, in 1347.

The earliest collectible scripophily pieces are from the 1600s. They were often just small signed bits of printed paper serving as receipts. By the 1700s, decorative pieces were often printed on vellum. The earliest US pieces started the 1790s. Engraved vignettes of 1800s railroad stocks made a popular collectable item. Before 1850, most pieces were black and white. Chromolithography, a printing process, was invented in the 1850s, which added colors to securities.

UK stock certificates remained conservative, eschewing artistry on most of their pieces. In the 1850s, steel plate engraving started displacing copper plate engraving, enabling high volume printing. Companies could have a custom designed certificate with expensive detailed vignettes. Or they could choose a generic design from a printer's proof book, to which they could add their company's name — much cheaper than a custom certificate.

Gene Hessler lays out the history of American engraving in his superb book *The Engraver's Line.*

Elaborate borders became a reality with an anti-counterfeiting device called geometric lathe work. Siderographers could combine unique designs on a steel plate with enormous skill. Their occupation has now died out, but at one time they were second only to the great engravers.

Art Nouveau (called Jugendstil in Germany) started in the 1890s, lasting until the First World War (1914-1918). Alfonse Mucha, a Czech, was a prominent proponent. After the First World War, a new movement, Art Deco, started, lasting 10-15 years. You can find Art Nouveau and Art Deco designs on securities.

Where do old securities come from?

Stocks and bonds are supposed to be destroyed once redeemed, so where do they come from? Some people never redeemed their stocks or bonds. Many businesses redeemed them and gave them to shredding companies who illicitly resold them as collectibles. Some securities were specimens made by printers to show companies how the certificates would look. Companies often kept these samples as archives. Printers like the American Bank Note Company kept others.

The Pennsylvania Central Railroad Company in the 1980s decided, instead of shredding its archived certificates, to sell them to scripophily dealers. In 1987, Coutts Bank in London sold off a hoard of 87,000 useless Confederate bonds to dealers who sold them to collectors. It is surprising to me that so many certificates are still available today. In the 1980s, companies started transitioning away from paper securities and relied on computer records. Today, the vast majority of modern companies no longer issue stock certificates.

So, if you like scripophily, what can you collect? Here are some examples of collectible areas:

- Art on securities, e.g., Art Deco, Mucha, etc.
- Vignettes by specific engraving companies or individual engravers, e.g., American Bank Note Company.
- Specific industries, e.g., railroads, autos, mining, aviation, telecommunications.
- Specific countries, e.g. US, Germany, UK
- Securities related to historical events, e.g., American Revolutionary securities (William Anderson has written a book on them called *The Price of Liberty*). Other examples are the South Sea Bubble, John Law's Mississippi Company, Californian gold rush, and Confederate bonds..
- Autographs of famous businessmen
- Scams and scandals
- Dow Jones securities

For those interested in Scripophily, two sources of education are the IBSS (International Bond and Stock Society), and the MOAF (Museum of American Finance).

In 2018, a main water pipe burst in the MOAF Museum in New York City. They are still searching for a new home. Each January, there is an Annual Scripophily Show in Hendon, Virginia.

IBSS's magazine *Scripophily* comes out three times a year and has interesting articles on various stocks and bonds and discusses auction results. Scripophily auction companies have a sell through rate around 50% (i.e., only 50% of their items sell). They set their prices at a minimum starting price. Many numismatic auction companies low-ball their estimates to stimulate bidding. But this is not the case with scripophily items. So, unless you are desperate for a piece, a 10-20% bid above the starting price is likely to land you the piece.

Internet dealers often overprice their offerings. If you want a $10-$20 item, it may save you the hassle just to pay for it. But for anything more expensive, scour the auctions and shows. eBay has many items, some selling reasonably, others selling unreasonably. But scripophily dealers are a service to us and need to make a living, so I feel we, as collectors, need to align our desires with theirs.

When it comes time to sell, scripophily items are not as fungible as slabbed, high-turnover coins. With only 20+ auction houses and low "sell-through" rates, one should not expect a killing. This is a hobby, not an investment!

A quote I once heard from Rolls Royce was that design, materials and workmanship create value. This is an admirable start to determining the value of anything, including securities. But one has to add a few more criteria — antiquity, desirability (a sister of marketing), rarity, beauty (especially vignettes), and historical importance.

The main securities are stocks and bonds. Stocks represent equity, i.e., ownership in a company. Bonds represent debt, i.e., lending money to a company. Below is a list of definitions:

Bonds

- **Corporate bonds** may be secured or unsecured. Secured means assets stated on the certificate back the bonds.
- **Debentures** are an unsecured bond with no specific backing, just faith that the company will pay you back.
- **Mortgage bonds** are a group of repackaged mortgages. For example, a thousand homeowners each take a 5% mortgage of $100,000. The mortgage company holding these mortgages worth $100 million can sell them all to a bank. The bank can then issue bonds to the public for $100 million, paying them 4% interest, and pocketing 1%. Changing mortgages or other loans into securities is called securitization.
- **Gold bonds** mean they paid interest and capital in gold money (no longer done).
- Governments and companies can issue bonds. **Government bonds** are more highly rated as most investors feel the full faith and credit of the federal government backs the bond. **State bonds** are usually quite secure, but the territory of Puerto Rico defaulted on their bonds in 2016.

Stock Certificates

- **Ordinary shares** are also called common stock. Companies pay these stockholders off last, after preferred shareholders and bondholders when a company liquidates.
- **Preferred shares**. Companies pay these off after bondholders, but before common stockholders if a company liquidates. Companies pay preferred dividends at a fixed percentage of the preferred stock's "par value." This is the value of the preferred stock as issued, typically written on the certificate. Preferred shareholders cannot vote for directors or attend annual shareholder meetings, like common stock holders. Some preferred shares, called convertibles, can be converted into ordinary shares.
- **Deferred dividends.** Companies only pay dividends if there is enough money left after they pay preferred shareholders' dividends. If they cannot pay preferred shareholders, the dividends may be deferred.
- **Inscribed stocks**. In the UK in the 1700s, they did not issue stock certificates. Instead, they entered the owner's name and stock into a register and only gave the owner a receipt for the money. The collectible here is the receipt for stock, but is not very exciting, just writing on a scrap of paper!
- **Endorsed stock certificate.** This means anything written or printed on the back of the stock certificate, e.g., transferred to Joe Schmo on January 3, 1894.
- **Assessable stocks**. In the 1700s and 1800s, you could buy stock by making a down payment, e.g., of 10%. The company would charge you later for further increments as the company developed. This created difficulties. For example, some stock buyers could not come up with the money. Stockholders also disliked later bills. So, most stock sold since the late 1800s has been non-assessable.
- **Registered stocks.** (also called nominative stock). This means the stock certificate had the owner's name written on it. If there was no name, it was called a "bearer" certificate. "Registered" certificates were like checks, only the owner could cash them. "Bearer" certificates were like cash.

Properties of Securities

1. Company name
2. Who they issued the security to: a named person or company (called nominative or registered), the bearer, or no name, e.g., specimen certificates. Specimen certificates (sometimes confusingly called normal certificates). These typically had all zeros for the serial number, no name, were uncanceled, and had no officer signatures. Sometimes they stamped them SPECIMEN. Printing companies made these so companies could see how their certificates would look.
3. Number of shares of stock, or number of dollars for a bond (in which case they also listed percent interest and terms).
4. Date of issue of certificate
5. Grade. Good means a certificate that looks terrible. Bits are missing. There may be discoloration, or tears into the design. The paper is very limp with many folds. Very Good certificates may have stains, a lot of wear, small margin tears, but some eye appeal. Fine certificates have many folds, minor discoloration, and a few minor edge tears, and light writing. Most collectible certificates will be Very Fine. The paper is still crisp, not floppy, but several folds are present, which may start to separate at the margin. Extra Fine certificates will have few folds and have original crispness. Uncirculated certificates are "as delivered" to the holder. This means that if a company folded the certificate to fit in their mailing envelope, it is still technically uncirculated. Also, the certificate may include a pinhole, as they often pinned certificates together. But the paper will be crisp and unmarked, with no extra folds.
6. Certificate number. A CUSIP number is a nine-digit alphanumeric code on certificates since the 1960s. CUSIP stands for Committee on Uniform Security Identification Procedures. It was a government database of security issuers.
7. Coupons for a bond. These may be underneath the bond, bound to the bond, or by the side of the bond, or absent.
8. Printer, e.g., ABNCo. There are three types of printing seen on certificates. Intaglio is thick ink raised above the level of the paper deposited from an engraved printing plate. Lithography is ink transferred from a printing stone. Letterpress is ink impressed into the paper, often seen with numbering, creating a dent in the paper seen from the other side (called embossing).
9. Signatures of the corporate officers, in the 1800s, often the original signature, but on modern certificates just a facsimile.
10. Design and vignettes. Frequently seen on medals are the abbreviations: Delixit (Latin for he designed or he drew); Sculpt or sculpcit (Latin for he sculpted); Fecit (Latin for he made); and Lith. (lithographer).
11. Any security may have a tax stamp affixed to show the issuer paid the requisite government tax. Some people collect certificates by these stamps.
12. The seal was originally embossed on the certificate, or something stuck onto it to certify the company issued it. This often included the date and state of incorporation. But in the 1900s, printing companies often printed the seal as an integral part of the certificate.
13. Stub. They issued old stocks from books with certificates. Each certificate was then torn from the book. On the stub they recorded investor information (name, date, and number of shares). When they redeemed the stock, they often pasted it back into the old book. Sometimes people disassembled old books to provide stock certificates for collectors, which may come glued to their stubs. Some books used indented margins as a security device — a complex margin design which could be cut to match each individual certificate.
14. Canceled or uncanceled. There are many types of cancellation:

Pen canceled means a pen stroke through the certificate or signatures, or the written word "cancelled."
Punch canceled means lots of tiny holes that spell a word, e.g., "CANCELED," or a date, e.g., 5-24-17. When you hold it up to the light, you can see more easily what it spells.
Hole canceled. The holes may be small and created by a roller in a line, or larger disfiguring holes of various shapes.
Cut canceled means cuts on the paper, sometimes cross shaped.

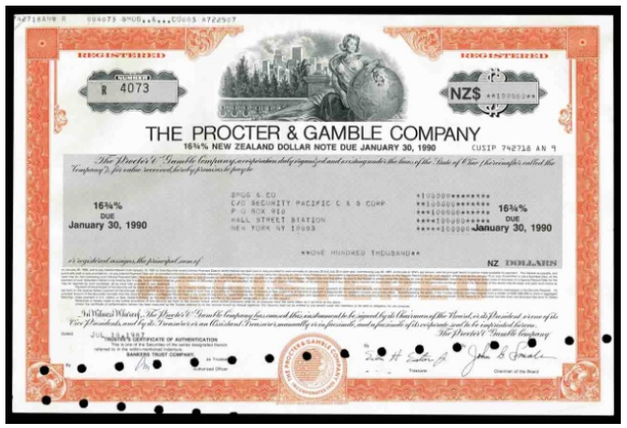
Cut out canceled means large bits of the certificate are missing, e.g., an edge cut off diagonally, or a square below, etc.
Stamp canceled is done with a rubber inked pad saying, "CANCELED."

TYPES OF CANCELLATION

Pen canceled through Flagler's and Rockefeller's name, also Cancelled is written

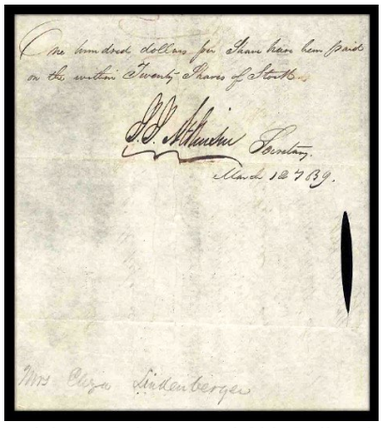
Punch canceled with a pin punch, tiny holes spell letters and numbers bottom left and right side of certificate. Right reads, "FN +1+8 64 C"

Hole canceled, note the canceller in this case was careful to put holes over the certificate numbers and signature areas. Holes can be large, small, round, rectangular, star-shaped, or combinations.



Hole canceled with a rolling puncher

Stamp canceled bottom right (note hole cancel left border also)



Cut out cancel (right) on Baltimore and Ohio Railroad 1837 stock certificate endorsed on back, cut out cancels can be round, rectangular, diagonal or triangular edge cut, etc.

Typical specimen certificate, note hole cancellations, stamped with SPECIMEN, and serial number 00000, and no treasurer or vice president signature. These all ensure the certificate is not used.

Buying Collectible securities

You can buy securities from dealers, auctions, eBay, paper shows, and scripophily shows.

To determine the value of scripophily items, vignettes are very important. People may seek an attractive large vignette. However, if thousands exist, this will not increase its value much. The other criteria of value still hold, i.e., design, materials, workmanship, beauty, historical value, rarity, antiquity, marketing and desirability.

A certificate is more valuable if issued to or signed by a famous person. It is even more valuable if issued to and signed by a famous person (scripophilists call this ITASB).

Condition grade may be very important for coin collectors, but for scripophily items it is much less important. Scripophily collectors will pay more for a nicer example of something, but they will not pay that much more.

There are several catalogues that list scripophily items and their values, though they are not very complete, and you will often come across non-listed items. If you come across items not listed, that does not necessarily mean the item is fake or valuable.

How Companies work

Let us assume you own a company. The simple equation for ownership is:

Assets of your company minus **Liabilities** = **Owner's equity**.

For example, **machinery plus building** value minus **loans** = **Owner's equity**.

Assets include a host of things like machinery, buildings, inventory, accounts receivable, and cash. It can also include intangible assets like patents, market share, product recognition, etc.

Liabilities may include accounts payable, pensions owed, preferred shares issued, bonds outstanding, loans, etc.

Owner's equity means the amount of money the owner has in the company.

If you, or a few of you, own a company, then you own all the owner's equity in the company. This is a closely held (or privately held) company. If you decide to get really big, you could "go public". This would mean issuing stock in your company for the public to buy. You could have an initial public offering (IPO) to float new shares in your company. This would decrease your personal equity. But it would increase cash available to develop the company further.

The number of shares and their price would relate to the current market value of the company. In an IPO, you decide how many shares you want to give to yourself as the original owner of the company.

Obviously, if you hogged all the shares, the public would not be keen to buy your stock. And if you sold all the shares, with none for yourself, you would get more money to operate the company, but would have less ownership (equity) in the company.

A company has two major ways to raise cash beyond selling more products. Firstly, it can raise cash by issuing shares in the company. But if the company is already a public company with shares, issuing more shares would dilute ownership, making existing shares worth less. Secondly, a company can issue bonds, which means the company has to pay back the borrowed money at a later date plus interest.

If you or your company are wealthy enough, you can buy back shares from the public. This increases your own equity in the company, giving yourself more control of the company.

A company's capitalization is the value of all its shares. For example, if a company issues forty-thousand shares of $25, its capitalization is 40,000 x $25 = $1 million. If the shares rise to $50 in the stock market, then the capitalization rises to $2 million.

This would not mean the company would get $2 million if they sold all their assets. That is a different number called the book value. Just because tangible assets may be worth less or more does not mean the capitalization is wrong. Capitalization reflects what the shareholders think the company is worth in terms of how much the company can earn.

In 1958, S&P 500 companies had an average of 61 years in the S&P. In the 2020s, that number is likely to wither to 15-20 years. Digital disruption has increased the pace of change. And digital companies themselves face fiercer and faster paced competition.

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https://www.innosight.com/insight/creative-destruction/#:~:text=Our latest analysis shows the,or acquisition by larger companies.

2

ARTISTIC SECURITIES

Accession #	Country	Year	Town	Description
2005	Belgium	1878	Bruxelles	Zoo
2146	Belgium	1898		African Bank of Colonial Enterprises Founder Shares
2147	Belgium	1898		L'Ikelemba Founder shares
2044	Belgium	1898		Company of Angola
1927	Belgium	1904	Bruges	Maritime Installations
2173	Belgium	1905	Bruxelles	Gas and Electricity
2786	Bulgaria	1925		Volksbank
2142	China	1908		Banque Cochinchine
2063	China	1919		Industrial Bank
2170	Czeck Republic	1940	Prague	Slavia Mutual Insurance (Mucha)
2145	Egypt	1927	Tourah-Le Caire	Portland cement
1953	Ethiopia	1899	Paris	Imperial Ethiopian Railroad built by France
2138	France	1882	Paris	Suez Canal
2794	France	1890		Library Printers
2111	France	1897		Franco Tunisian Land Co
2313	France	1898	Paris	Paris-France by Alfonse Mucha
2183	France	1899	Paris	Venice to Paris
2139	France	1907		Eclipse Cinemaphotography
2793	France	1910	Nice	Olive Old of Nice
1955	France	1912	Paris	Omnibus
1954 & 2187	France	1921	Paris	Claridges Hotels Co
2148	France	1921		B.Sirven
2067	France	1923	Nice	Franco Italian Co
2144	France	1925	Paris	Union Immobiliere
2019	Hungary	1906	Budapest	Domestic First Savings Bank
2066	Norway	1917		Copra
2185	Portugal	1884		Fabrica de Faiancas
2043	Portugal	1904	Lisbon	Zoological Gardens of Lisbon
2184	Portugal	1920		National Road and Electricity Company
2396	Spain	1755	Barcelona	Royal Commerce Co.
2149	Spain	1900	Cartagena	Cartagena Bank
2174	Spain	1916	Barcelona	Hispano-Suiza of Barcelona
2443	Spain	1918	Barcelona	Astilleros of Tarragona
2150	Spain	1924	Bilbao	Iberian Hydroelectric of Bilbao
2143	Spain	1926		The Isles of Guadalquivir
2065	Spain	1929		Electric Energy of Mijares
2151	Spain	19- -		Mercantil Española
2026	Spain	1932	Barcelona	Barcelona Traction, Light, and Power
2090	UK	1892	London	Tubular Channel Railroad
1928	US	1862	Columbia, CA	Tuolumne County Water Company
2372	US	1866	NYC	Santa Anna bond
2171	US	1876		1876 Centennial International Exposition
1918	US	1913	NYC	Central Railroad Co. Grand Central Vignette
2089	US	1969		Ringling Brothers Circus

Article 12 des Statuts :

Les actions seront représentées par une inscription sur un registre à ce destiné; il est délivré des certificats de cette inscription pour une ou plusieurs actions. Ces certificats sont signés par deux Administrateurs délégués et par le Directeur général.

Le transfert des actions s'opère sur ledit registre; il est signé par le cédant et par le cessionnaire. Toute action peut être transférée par son propriétaire, mais ce transfert ne confère la qualité de membre effectif au cessionnaire que pour autant qu'il ait été admis par le comité électoral. Mention de cette admission sera faite sur le registre, en marge du transfert.

Belgium

BRUSSELS ROYAL SOCIETY OF ZOOLOGY, HORTICULTURE, & LEISURE 1851 #2005

The Stock Certificate
Stock certificate collectors love collecting zoo shares — they often depict different animals. This isn't just any old financial document, oh no! It's a veritable time machine that transports you back to the wild and wonderful world of 19th-century animal entertainment!

On the certificate opposite, a beautiful ornamental arch beckons you into a distant field showing a camel and a stag frolicking, as if posing for a Victorian postcard.

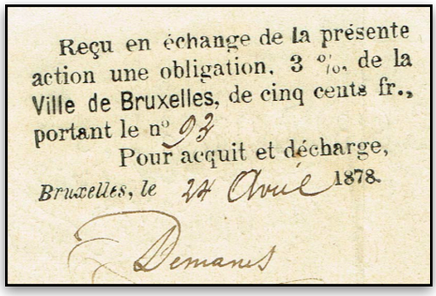
The path to the arch is an animal parade. Here we have a tiger, looking suspiciously cuddly as a man pets it (health and safety regulations were clearly more relaxed back then). There's a snake, probably auditioning for a role in a future Indiana Jones movie. And what's this? A young boy atop a dromedary, because why walk when you can camel-ride?

In the foreground, a weasel and a crocodile engage in what we can only assume is a heated debate about stock market trends. Meanwhile, two parrots perch above the arch, no doubt gossiping about the latest zoo scandals.

Now, let's talk about the camel controversy. See that two-humped fellow in the distance? That's a proper camel. The one-humped chap in the foreground? That's a dromedary.

And for those of you keeping score at home, yes, that's a crocodile, not an alligator. How can we tell? It's all in the jaw. V-shaped for our crocodile friend, as opposed to the U-shaped maw of its alligator cousin. Who knew a stock certificate could double as a zoology lesson?

They made the certificate out to a Demanet Emmanuel for one share, with the signatures of two delegated administrators and the zoo's Director General. At the bottom, Brown and Bocquet sign as engravers. The back is cancel stamped:


Reçu en échange de la présente action une obligation, 3 %, de la Ville de Bruxelles, de cinq cents fr., portant le n° 93
Pour acquit et décharge,
Bruxelles, le 24 Avril 1878.
Demanet

In translation this says: Received in exchange for this share, an obligation 3% of the City of Brussels, of five hundred francs, bearing the number 93 (which you can see on the top right on the face of the certificate). For acquittal and discharge, Brussels, April 24, 1878.

Below this back cancel stamp is the signature of Demanet again (his surname). What happened in 1878? They exchanged his certificate of one share for a 500 franc 3% bond backed by Brussels.

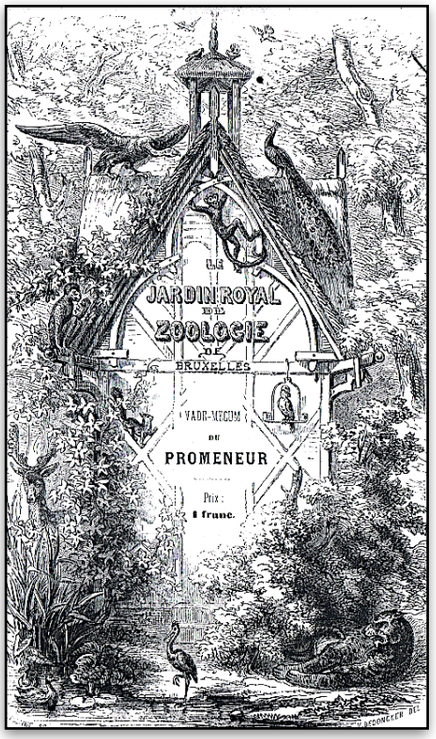
Why? Because, in 1878, Emmanuel's zoo dreams came crashing down! The zoo closed. He now found his exotic animal share transformed into a decidedly less exciting 3% city bond. From lions and tigers to municipal infrastructure, what a change! But at the time, 500 francs was worth about 5 ounces of gold, equivalent to around $13,000 in 2024.

The Latin Monetary Union
In 1865, France, Belgium, Italy and Switzerland signed a treaty for the Latin Monetary Union (LMU) to standardize their coinage. They agreed to use the French franc fixing weights of their silver and gold coins at the same fixed ratio of 15.5:1. Other countries joined later.

The Papacy took advantage of the LMU by striking debased silver coins beyond agreed upon quotas. In 1870, the LMU forced the Papacy out. When the Comstock Lode started pouring out silver in 1877, it created problems for bimetallism. In 1878, the LMU switched to a de facto gold standard using gold only coins. The US took a little longer to get to the gold standard because of mining politics.

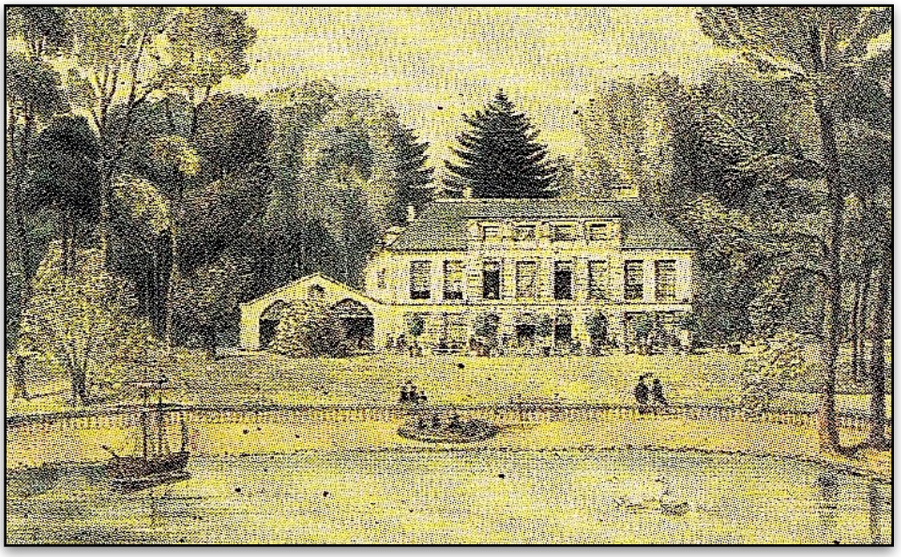
But bimetallism was doomed from the outset, as the relative value of gold and silver had always fluctuated. The US had already learnt this in 1834, when they had to reduce the weight of their gold coins by 6.25%.

Early zoos in Belgium
During the rise of Belgian middle classes in the 1800s, Belgium founded the Antwerp Zoo in 1843. In 1851, 710 excited Brussels shareholders raised 600,000 francs for a zoo. Ghent Zoo followed the same year and Liège in 1865. Brussels bought a 16-acre estate of the chateau and outbuildings of the Chevalier Dubois de Bianco (shown below).



Guide book cover for Brussels zoo,

movement, now defunct, thought they could acclimatize tropical animals to a European climate. Linden foresaw bankruptcy and left in 1868. It was more like an amusement park than a serious scientific institution and lacked influential management.

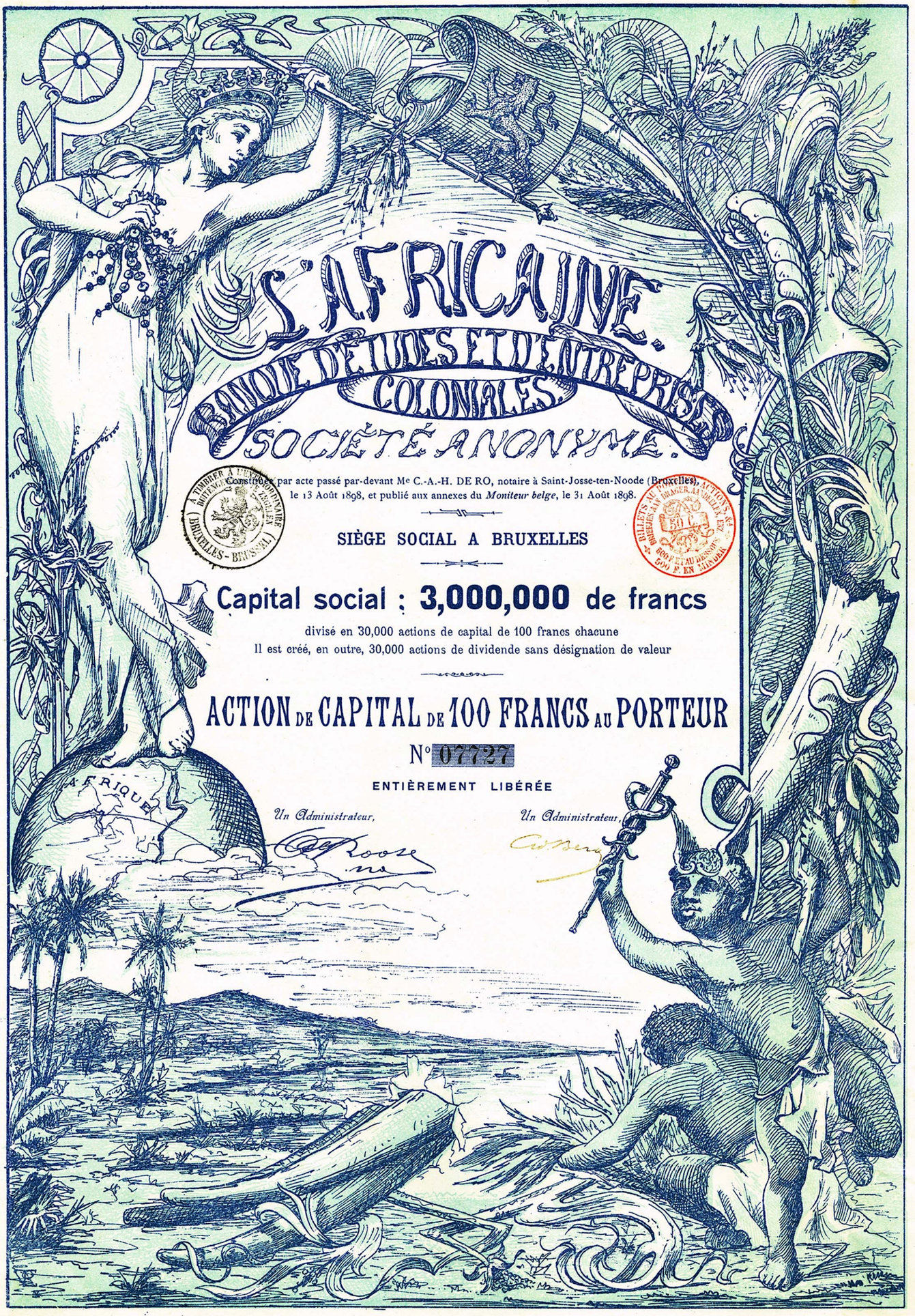

Chevalier de Bianco house of pleasure, changed to a restaurant for the zoo

Brussels saw themselves as a more of a leisure garden with animals for entertainment. Rich ladies paraded their finery. Children were not allowed to run. They gave concerts, and children's rides on ponies and camels. In 1860, they added another 11 acres when they bought an adjacent convent and sold farm produce.

Closure of the zoo
But all was not well. Despite the directorship of the renowned botanist Jean Linden, two years after opening, 140 of the 567 animals died. Part of the problem: the acclimatization

They closed in 1876, giving investors city bonds for their shares. They sold off the animals in 1879 and 1880. That year, the zoo became a public park, the Parc Leopold, which still exists. They converted the old convent into a Natural History Museum.

References
https://journals.openedition.org/brussels/1223?lang=en#:~:text=The first was founded in,boredom and stimulate scientific interest.



Constituée par acte passé par-devant Me C.-A.-H. DE RO, notaire à Saint-Josse-ten-Noode (Bruxelles), le 13 Août 1898, et publié aux annexes du *Moniteur belge*, le 31 Août 1898.

SIÈGE SOCIAL A BRUXELLES

Capital social : 3,000,000 de francs

divisé en 30,000 actions de capital de 100 francs chacune
Il est créé, en outre, 30,000 actions de dividende sans désignation de valeur

ACTION DE CAPITAL DE 100 FRANCS AU PORTEUR

N° 07727

ENTIÈREMENT LIBÉRÉE

Un Administrateur, *Un Administrateur,*

Belgium

AFRICAN BANK OF COLONIAL ENTERPRISES OF BRUSSELS, 1898 #2146

The company and the stocks
This bank's investors raised 3 million francs for economic activity in the Belgian Congo. The Belgian money was used for a variety of activities, like banking, plantations, mines, railways, shipping lines, etc.

At 100 francs per bearer share, they needed 30,000 shares to reach their desired capital. The expression Société Anonyme meant anonymous society — the European equivalent of an incorporated company in the US.

Art Nouveau flourished from 1890 to 1910. This Art Nouveau certificate uses long curving lines, but no imitative art. You can see this in the lady's body to the upper left, and the flowing stem emanating from the African cherub. He holds a caduceus, and with his winged hat, symbolizes Hermes (Mercury in Rome), the god of commerce. Ivory tusks lay on the ground, ready for the taking!

The crowned lady at the top holds a banner with a rampant lion and wears sinuous hair down to her waist. The rampant lion had represented the Count of Flanders since the 1100s. In 1405, the Dukes of Burgundy inherited the county of Flanders, which passed to the House of Habsburg in 1482. The same lion featured on the arms of the Kings of Spain until 1931.

History of Belgium
Present day Netherlands fought the Eighty Years' War of independence (1568-1648) from the Habsburg-controlled Spanish Netherlands. Finally, the Dutch speaking Protestant Northern Netherlands won independence.

But the Habsburgs kept control of the Southern Catholic French speaking Netherlands, also called the Austrian Netherlands. In 1795, Napoleon conquered them. In 1814, they became the United Kingdom of the Netherlands, which split into Luxembourg and Belgium in 1830. Thus, Belgium's coat of arms includes a rampant lion. Leopold I ruled as king of Belgium from 1831 to 1865, followed by his son Leopold II until 1909.

The Scramble for Africa

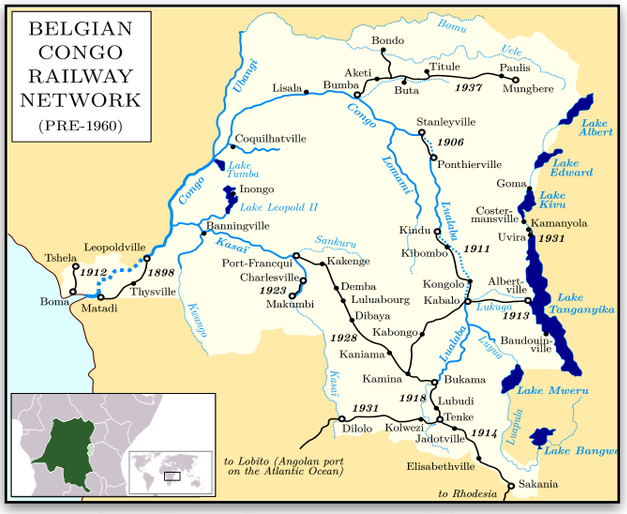
Leopold II of Belgium

In the 1400s, Portugal and Spain started colonizing Africa. The later "Scramble for Africa" took place from 1833 to 1914. In 1833, Europe had colonized 10% of Africa. But by 1914, Britain, France, Spain, Portugal, Germany and Italy had colonized 90% of Africa, especially coastal areas. But Belgium was late to the game.

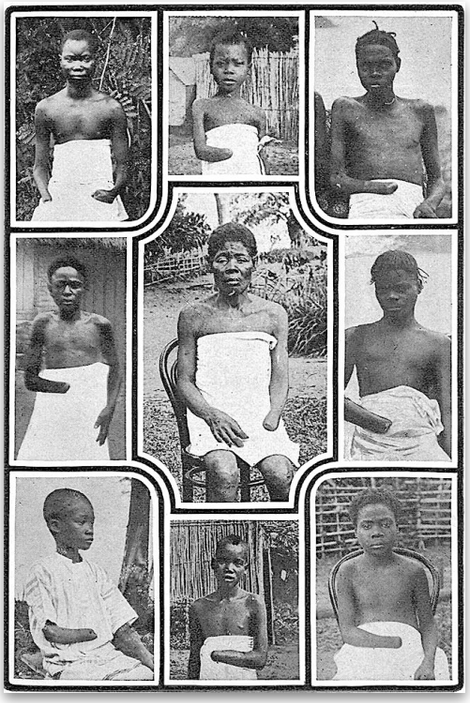
Leopold's abuses
In 1876, the stubborn Leopold II organized the International African Association to explore Africa, keen to acquire his own colony despite no Belgian governmental interest. Then, in 1884, Bismarck organized a conference for Europeans to avoid conflict while colonizing Africa.

The next year, the US and Europe recognized Leopold's claim. He got 900,000 square miles of inland Africa he called the État Indépendant du Congo (EIC), which the English called the Congo Free State.

Leopold administered this as his own bailiwick. His private army committed atrocities to extract resources and labor from the Africans, causing immense human suffering and deaths, leading to international outcries and investigations.



Belgian Congo Map — 80 times the size of Belgium, covering 0.9 million square miles (India is 1.1 million square miles)


Children mutilated by Leopold's private troops

An estimated ten million Congolese died when Leopold II made the Congo his personal property in 1885.

In 1998, the American historian, Adam Hochschild published *King Leopold's Ghost, a Story of Greed, Terror, and Heroism in Colonial Africa*. He describes Leopold's rape of the Congo, taking ivory, copper, rubber, and diamonds, making him fabulously wealthy. With that wealth, he extended his palace.

An Amazon review of the book says:
"In the 1880s, as the European powers were carving up Africa, King Leopold II of Belgium seized for himself the vast and mostly unexplored territory surrounding the Congo River. Carrying out a genocidal plundering of the Congo, he looted its rubber, brutalized its people, and ultimately slashed its population by ten million—all the while shrewdly cultivating his reputation as a great humanitarian. Heroic efforts to expose these crimes eventually led to the first great human rights movement of the twentieth century, in which everyone from Mark Twain to the Archbishop of Canterbury participated. King Leopold's Ghost is the haunting account of a megalomaniac of monstrous proportions, a man as cunning, charming, and cruel as any of the great Shakespearean villains. It is also the deeply moving portrait of those who fought Leopold: a brave handful of missionaries, travelers, and young idealists who went to Africa for work or adventure and unexpectedly found themselves witnesses to a holocaust."

In 1908, after international outcries, the Belgian State forced Leopold to sell the Congo to them for 215 million francs. This included paying off investors, including this bond. The next year, the *Banque du Congo Belge* opened, which managed financing the Belgian Congo until their independence in 1960.

Many Belgians had worked or had relatives who worked in the Congo in the early days. Stories of Leopold's abuses circulated, but over time, many Belgians forgot the holocaust. And some Belgian elites wanted it that way.

Independence for Belgian Congo
In 1960, Belgium granted independence to the Congo as the Democratic Republic of the Congo. Despite this, the next year, Belgium (with US help), executed the first Prime Minister, Patrice Lumumba. A few years later, the Congo removed King Leopold's name from their capital Leopoldville, renaming it Kinshasa — a fitting end to mutilation, death, and exploitation.

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https://en.wikipedia.org/wiki/Banque_du_Congo_Belge#:~:text=The Banque du Congo Belge,Congo from 1909 to 1960.
https://en.wikipedia.org/wiki/Belgian_Congo#/media/File:MutilatedChildrenFromCongo.jpg
https://en.wikipedia.org/wiki/Belgian_Congo
https://en.wikipedia.org/wiki/Belgian_Congo#/media/File:Belgian_Congo_Railway_Network_pre-1960.svg

TRAVAIL ET PROGRÈS

L'IKELEMBA

SOCIÉTÉ ANONYME

Constituée par acte passé devant M.e Félix Du Mortier, notaire à Bruxelles, le 29 Octobre 1898 et publié au "Moniteur Belge" le 18 Novembre 1898, acte N.o 4460.

Siège Social : AU CONGO *(Etat Indépendant)*

Siège Administratif à BRUXELLES.

CAPITAL SOCIAL : 500,000 Frs

représenté par 5000 Actions de capital de 100 fr.s chacune

Il a été créé en outre 5000 Actions de dividende sans désignation de valeur

ACTION de DIVIDENDE

au porteur

sans désignation de valeur.

N.o 3608

Un Administrateur, *Un Administrateur,*

Cte de la Barre

V. DE COEN.

Lith. du "Messager de Bruxelles"

Belgium
L'IKELEMBA S. A., BRUSSELS, 1898 #2147

The Certificate
Yet another Leopold II Belgian Congo stock certificate! The certificate's blurb says the head office (siège social) was in the Congo and the administrative office in Brussels. The total capital (capital social) was 500,000 francs, composed of 5,000 shares each of 100 francs. In small print below it says that, in addition, they created 5,000 dividend shares without value (this one). Thus, there were two types of share, first a capital share of 100 francs, and second a dividend share. These are bearer shares, i.e., no named owner. How did this work? Twenty percent were the 100 franc deposit shares, leaving 4,000 dividend shares distributed among subscribers.

The certificate shows crossed spears with four flags and a crowned rampant lion shield, the arms of Leopold II.

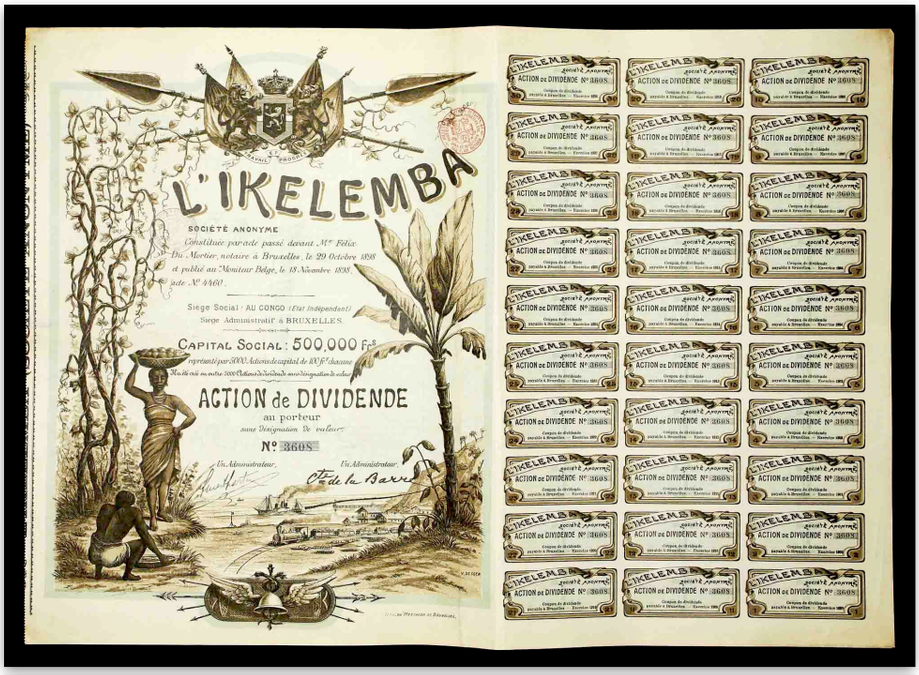
Below is the motto Travail et Progress, part of the motto of Leopold's Congo Free State. The full motto was *Travail et Progress, L'union Fait la Force* (Work and Progress, Unity Makes Strength). The motto of Belgium was just Unity Makes Strength. They did not have to worry much about work! They left that to the natives!

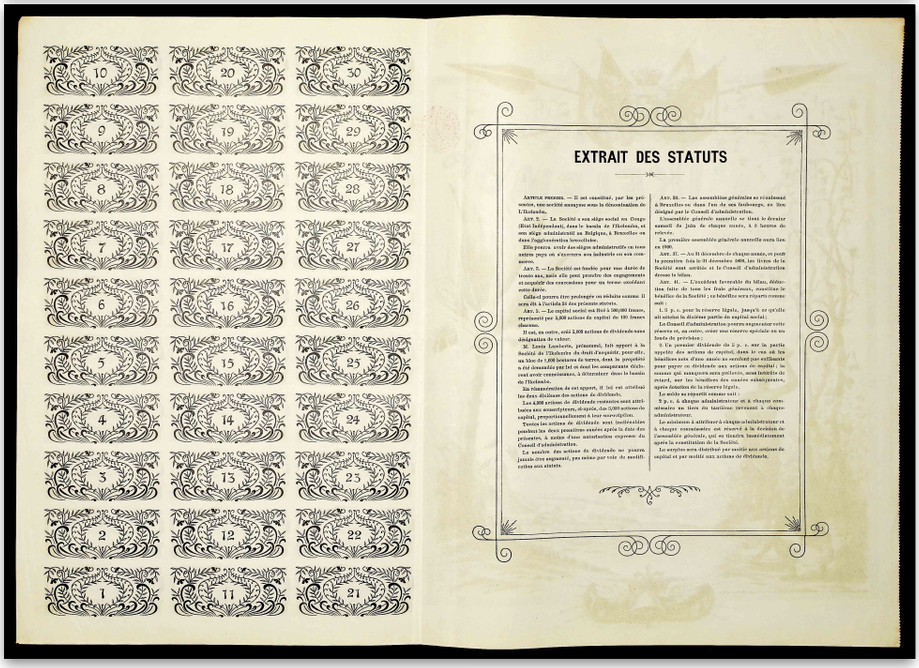
Coat of Arms of Leopold II and and Albert I of Belgium, 1865-1921

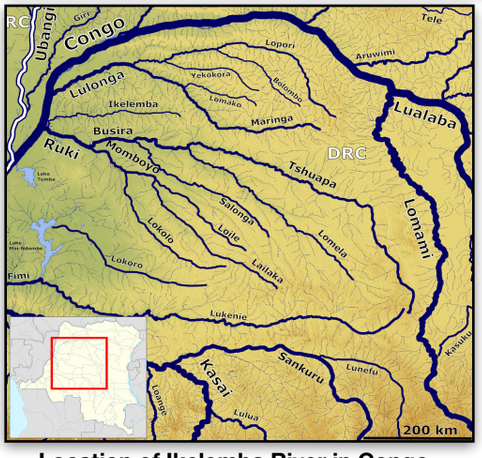
Below the arms are fig palms. A Congolese lady carries produce on her head, while a Congolese man gathers items from the ground onto a tray. In the distance is the sea, with a side-wheel steamer, a pier, and a railroad transporting items. At the base is a native shield and arrows, with Hermes' winged hat, and caduceus, to ensure commerce. Belgium likely missed that Hermes was god of thieves!

The Company
The company bought a 1,000 hectare estate (around 2,500 acres or 4 square miles) on the Ikelemba River, a tributary of the Congo River that Henry Stanley had explored. Stanley was the explorer who found the missionary Dr. Livingstone in 1871. British 1960s era comics had stories of Stanley looking for Dr. Livingstone, ending with their meeting in 1871, when Stanley said the famous words, "Dr. Livingstone, I presume."

In the first two years, the company sent 120 tonnes of rubber to Belgium and planted coffee, cocoa, and more rubber trees. They were off to a great start, but problems appeared. Rubber prices fell, and the tree incense resin (copal) disappeared during transportation. Not surprisingly, the Congolese natives resisted enslaved labor. By 1910, the Société Equatorale Congolese Lulonga-Ikelemba (Congolese Equatorial Company of Lulonga-Ikelemba) took over their assets.







Location of Ikelemba River in Congo, shown top left/center

L'Ikelemba SA operated on Leopold's land. Belgium argued that education, Christianization, technology, and medicine justified colonization. They said this justified theft of land, resources, and labor, making a better future for the Congolese. But they conveniently left out of the equation chopping off the hands of countless children and the genocide of ten million Congolese!

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https://en.wikipedia.org/wiki/Coat_of_arms_of_Belgium#/media/File:Coat_of_Arms_of_the_King_of_the_Belgians_(1837-1921).svg
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https://en.wikipedia.org/wiki/Banque_du_Congo_Belge

B.D.H. 505-07

COMPANHIA
DE
ANGOLA

SOCIÉTÉ ANONYME

Constituée par acte passé par-devant Me DUPONT, *notaire à Bruxelles, le 3 décembre* 1898, *publié au* Moniteur belge *le 17 décembre* 1898 (*N° 4842 des annexes*).

CAPITAL SOCIAL : 260,000 FRANCS

REPRÉSENTÉ PAR

5,200 actions de capital de 50 francs chacune
et 5,200 actions de dividende sans désignation de valeur

SIÈGE SOCIAL : SCHAERBEEK-BRUXELLES

Action de Capital de Cinquante Francs

N° 1385

ENTIÈREMENT LIBÉRÉE AU PORTEUR

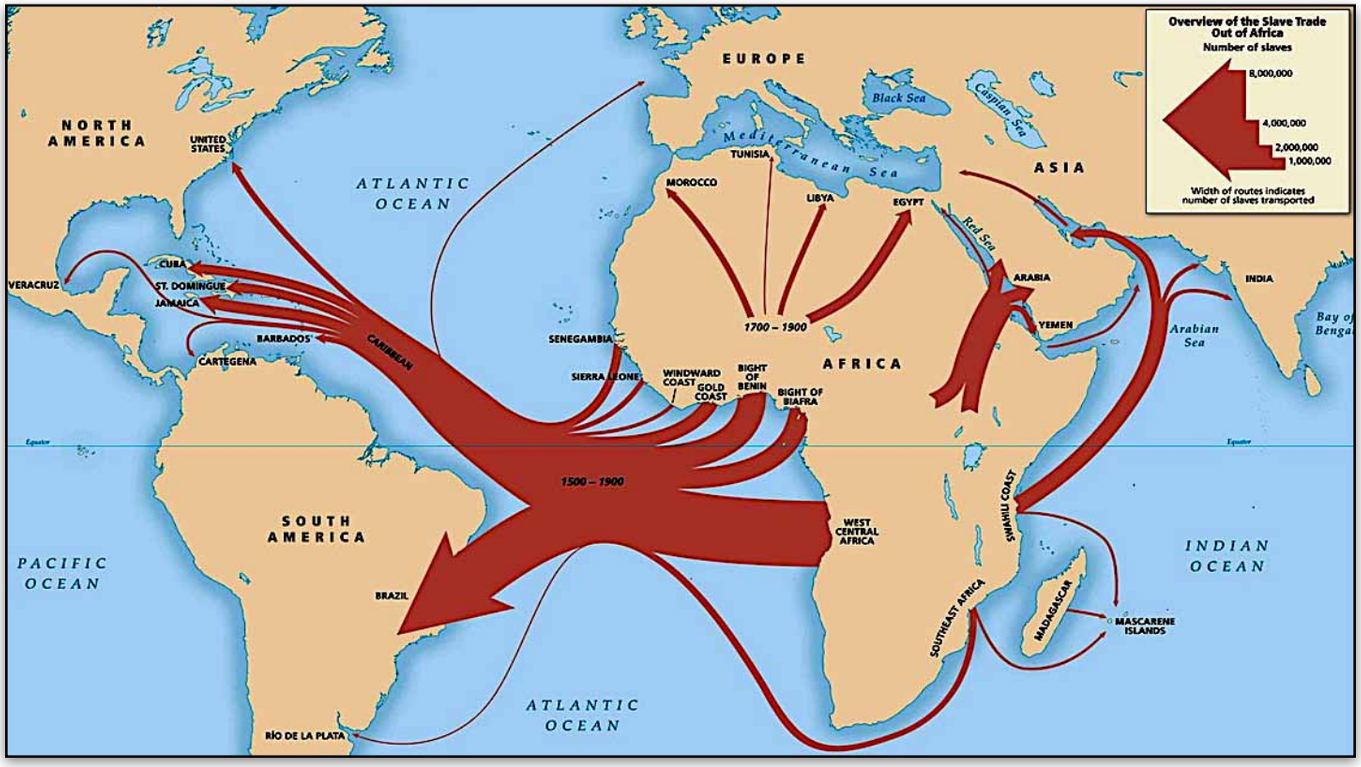
Schaerbeek-Bruxelles, le 15 *mai* 1899

Un Administrateur, Un Administrateur,

N° 7001. — ACADÉMIE GRAPHIQUE, 37, RUE ROBIANO, BRUXELLES.

Belgium

COMPANY OF ANGOLA S.A., BRUSSELS, 1898 #2044



UN map showing source and destination of enslaved people 1500-1900 CE. Note that most came from present-day Angola.

The Certificate
This certificate shows a baby elephant in the foreground with palm trees behind. At the top is an inserted engraving of three covered wagons filled with products, each pulled by a team of six oxen. This announces that goods were ripe for the picking!

They capitalized the company at 260,000 francs, composed of 5,200 bearer certificates for 50 francs and 5,200 bearer certificates without value.

Thirty year's worth of coupons were attached with unspecified dividends. The head office was in Schaerbeek-Brussels, one of the 19 municipalities in the Brussels-Capital region. The tax stamps, like the last two certificates, are bilingual (French and Dutch), then both Belgian official languages.

Companhia is Portuguese for company. So, how come a Portuguese company listed its head office in Brussels?

The Slave Trade and its History
In the 1600s, Portugal exiled convicts to Angola. Whites and mixed race descendants expanded especially in Luanda, the coastal capital of Angola. Angola was just south of the Congo. In 1575, Portugal set up a colony in Luanda whose chief aim was exporting enslaved Africans. By the late 1700s, Europeans and Africans had colluded to export so many enslaved men that Angola had twice as many women as men.

From 1500 to 1900 CE, Europeans shipped 15 million enslaved Africans to the New World. They came from (see map above):

- 40% West Central Africa (now Angola)
- 35% Nigeria
- 10% Ghana and Ivory Coast
- 5% Senegal and Gambia

Around 2.2 million died during the middle passage. The mortality for white sailors on the same ships was similar at 20%, mainly from malaria. Another third of enslaved people died in their first year at Caribbean seasoning camps, chiefly from dysentery. Traders "seasoned" them to teach them the local language, local farming practices, and to break their resistance to enslavement.

The commonest destinations for transatlantic enslaved people were:

- 40% Brazil
- 20% West Indies
- 17% Spanish Empire
- 13% French Empire
- 10% British North America

Slavery has existed since ancient times. Ancient Greeks who conquered adjacent city states often enslaved their captives. Ancient Rome and Islamic Arabs traded slaves. Europeans did not capture slaves in Africa. Africans captured them. Abductors did not share a common black ancestry, usually they captured adjacent competing tribes. They sold them to Europeans in exchange for guns, textiles, alcohol, metal goods, beads, and tobacco.

Slavery in Angola
From the 1860s, the Portuguese controlled Angolan slaves to harvest coffee, cotton, sugar, fish, ivory, and rubber.

A year after Congo's independence in 1960, next door Angola revolted against Portugal. Turmoil continued until the Portuguese withdrew in 1975, giving Angola independence. But another 27 years of civil war followed, leaving a third of her 13 million population internally displaced, i.e. forced to leave their homes.. Angola has one of the lowest life expectancies in the world, and a

Map of Angola

low literacy, with a brain drain of the few college graduates. Almost half the people have no clean water. One half of the southern province of Huila suffers from chronic malnutrition. Over a third of Angola's economy and 90% of exports now come from oil. Per capita income is only $7,000 a year.

I could not find details of this stock certificate, but the company's name is in Portuguese, though the head office was in Brussels. The small amount of capital they expected to raise suggests a small Portuguese company operating an estate in Angola, probably near the Congo and by the coast or on a river for transport. They likely forced slaves to harvest rubber and/or coffee. Another possibility is a network transporting ivory to the coast, as suggested by the top image on the certificate.

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Angola_-_Location_Map_(2013)_-_AGO_-_UNOCHA.svg

EXEMPTION DU TIMBRE
(CONVENTION-LOI
DU 1er JUIN 1894 - 11 SEPT. 1895 — ART. 8.)

COMPAGNIE DES INSTALLATIONS MARITIMES DE BRUGES

SOCIÉTÉ ANONYME

CONSTITUÉE PAR ACTE PASSÉ DEVANT Mes RENÉ FRAEYS ET JOSEPH VAN DER HOFSTADT, NOTAIRES A BRUGES, LE 26 NOVEMBRE 1895, PUBLIÉ AU MONITEUR BELGE, ANNEXE DU 14 DÉCEMBRE 1895, N° 3542.

AU CAPITAL DE 9.000.000 FRANCS

REPRÉSENTÉ PAR 9.000 ACTIONS PRIVILÉGIÉES DE 500 FRANCS CHACUNE
ET PAR 9.000 ACTIONS ORDINAIRES DE 500 FRANCS CHACUNE

IL SERA CRÉÉ EN OUTRE 9.000 ACTIONS DE JOUISSANCE DESTINÉES A REMPLACER LES ACTIONS PRIVILÉGIÉES AU FUR ET A MESURE DE L'AMORTISSEMENT DE CELLES-CI CONFORMÉMENT AUX STATUTS

ACTION PRIVILÉGIÉE DE 500 FR.
AU PORTEUR

N° 7768

BRUGES, LE 1er MAI 1904.

UN ADMINISTRATEUR, UN ADMINISTRATEUR,

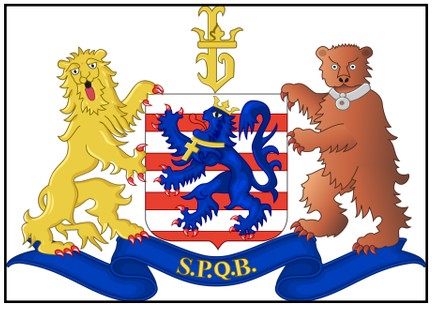
Joseph Strubbe

Société St Augustin, Bruges.

Belgium

MARITIME INSTALLATION COMPANY OF BRUGES, 1904 #1927

Among stock and bond collectors, this certificate stands out for its breathtaking design. It features an angel holding a torch disguised as a flower, from which radiant sunbeams illuminate the city of Bruges below. Printed by the Saint Augustin Company in Bruges, the certificate includes three views of the city arranged in a triptych above. Below this, an angel stands on a large anchor, symbolizing her connection to the sea. Above her, a bear holds a shield with a rampant lion —the coat of arms of Belgium.



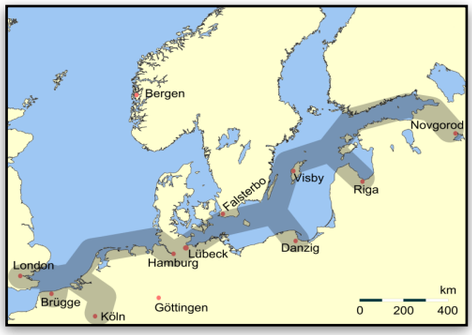
Coat of Arms of City of Bruges, lion and bear holding Belgium's Coat of Arms

Bruges has a storied past, its origins tracing back to 57 BCE when Caesar built fortifications to protect against pirates while fighting the ancient Belgae tribes. The SPQB on the coat of arms mimics Rome's SPQR (Senatus PopulusQue Romanus), and means the Senate and People of Bruges.

The stock issue totaled 9 million francs. They split it into 9,000 ordinary bearer shares of 500 francs, and 9,000 preferred bearer shares of 500 francs (of which this certificate is one).

Bruges: A Historical Gem

Bruges became the capital of Flanders but faced challenges in 1050 when silting blocked its canal access to the sea. However, in 1134 CE, a storm reopened it. This allowed maritime commerce from Scotland and London, and later from Genoa and the Levant in the 1200s. The 1300s saw a Bourse open and thriving maritime trade with Venice and Spain. By the 1400s, Bruges weavers were renowned worldwide.



Main trading routes of Hanseatic League

The city's wealth soared as a member of the Hanseatic League, founded by German merchants to further their maritime trading interests from 1356 to 1862. This era also saw the flourishing of the Flemish school of art. The main channel from the sea began silting up again in the 1500s, so they dredged it in the 1600s. Bruges continued to shine with its lace-making industry. The future Charles II of England held his Catholic court in exile there.

Nine years before issuing this stock certificate, the Bruges Maritime Company constructed a canal and port installations. The city, located nine miles inland, has an adjacent coastal area called Zeebrugge, meaning Bruges-by-the-sea, where they built a deepwater port in 1907. Both Amsterdam and Bruges vie for the title "Venice of the North."

A Blend of Medieval and Modern

Bruges is a stunning mix of well-preserved medieval and modern architecture, earning it a UNESCO World Heritage Site designation. Its name comes from the Old Dutch word for "bridge." Once a great trade city, Bruges is now a beloved tourist destination, known for its breweries, chocolatiers, and restaurants.

Church of Our Lady Bruges

The certificate's top left panel depicts the Church of Our Lady Bruges with its 380-foot brick spire. It houses Michelangelo's Madonna and Child—the only sculpture to have left Italy during his lifetime. The certificate's top middle panel showcases the canal with the iconic 1200s Belfry of Bruges, featuring its octagonal top. The top right panel highlights Bruges' medieval architecture.

Belfry of Bruges, a UNESCO World Heritage Site

Bruges Today

Today, Netherland's port of Rotterdam is Europe's largest, handling 490 million tonnes of cargo a year. The combined port authority of Antwerp-Bruges ranks second with 271 million tonnes a year, while the port of London ranks 18th in Europe with only 55 million tonnes.

This certificate, with its intricate artwork and rich historical context, is not just a piece of financial history but a captivating story of a city's enduring legacy and cultural heritage.

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COMPAGNIE GÉNÉRALE DE GAZ ET D'ELECTRICITÉ

SOCIÉTÉ ANONYME

SIÈGE SOCIAL À BRUXELLES

CONSTITUÉE SUIVANT ACTE REÇU PAR Me STANDAERT, NOTAIRE À BRUGES, LE 25 MAI 1905, PUBLIÉ À L'ANNEXE AU MONITEUR BELGE DU 10 JUIN 1905, 3315 ET DONT LES STATUTS ONT ÉTÉ MODIFIÉS SUIVANT ACTES REÇUS PAR LE MÊME NOTAIRE LE 29 DÉCEMBRE 1906, 17 AVRIL, 7 JUIN ET 7 SEPTEMBRE 1907 ET 30 JUIN 1908, PAR Me HENRI FRAEYS, NOTAIRE À BRUGES, LE 7 AVRIL 1911, PAR Me AUGUSTE SCHEYVEN, NOTAIRE À BRUXELLES, LES 30 JANVIER 1911 ET 21 NOVEMBRE 1912, PAR Me HENRI FRAEYS, LE 18 JANVIER 1913, PAR Me VICTOR SCHEYVEN, NOTAIRE À BRUXELLES, LES 20 NOVEMBRE 1919, 18 NOVEMBRE 1920, 24 MAI 1921 ET 16 NOVEMBRE 1922, PAR Me LÉON COENEN SUBSTITUANT Me VICTOR SCHEYVEN, TOUS DEUX NOTAIRES À BRUXELLES, LE 23 JANVIER 1924, PAR Me VICTOR SCHEYVEN, LE 21 DÉCEMBRE 1925 ET PAR Me HUBERT SCHEYVEN, NOTAIRE À BRUXELLES, LES 15 NOVEMBRE 1928 ET 16 JUILLET 1929 ET PAR Mes HUBERT SCHEYVEN ET EDOUARD VAN HALTEREN LE 1er JUILLET 1930, PUBLIÉS AUX ANNEXES AU MONITEUR BELGE DES 17 JANVIER 1907, No 319, 29-30 AVRIL 1907, No 2670, 28 JUIN 1907, No 3901, 27 SEPTEMBRE 1907, No 5226, 15 JUILLET 1908, No 4276, 18 FÉVRIER 1911, No 901, 24-25 AVRIL 1911, No 2653, 15 DÉCEMBRE 1912, No 7832, 25 JANVIER 1913, No 519, 11 DÉCEMBRE 1919, No 10899, 11-12 DÉCEMBRE 1920, No 12894, 9 JUIN 1921, No 6481, 8-9 DÉCEMBRE 1922, No 12013, 7 FÉVRIER 1924, No 1223, 13 JANVIER 1926, Nos 440 et 441, 8 DÉCEMBRE 1928, No 15884, 8 AOUT 1929, No 12939, ET 26 JUILLET 1930, No 12163.

REGISTRE DU COMMERCE DE BRUXELLES No 8073.

CAPITAL SOCIAL : 194.000.000 FRANCS

REPRESENTÉ PAR 313.810 PARTS SOCIALES SANS MENTION DE VALEUR NOMINALE, REPRÉSENTANT CHACUNE 1/313.810 DE L'AVOIR SOCIAL.

PART SOCIALE

SANS MENTION DE VALEUR NOMINALE ENTIÈREMENT LIBÉRÉE, AU PORTEUR.

N° 296866

UN ADMINISTRATEUR,

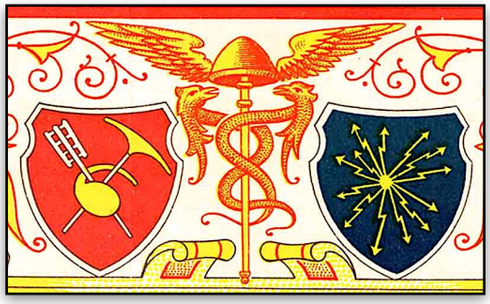
UN ADMINISTRATEUR,

Établts d'Imprimerie Gouweloos Frères Bruxelles

Belgium

GENERAL GAS AND ELECTRICITY SA, BRUSSELS , 1905 #2173

This stunning certificate showcases the elegance of the era with its attractive framing and Art Nouveau designs. At the top are a winged petasus (hat) and caduceus of Hermes, the messenger god and god of commerce. To the right, a shield depicts jagged lines of electricity in yellow and blue. A shield on the left in yellow and red features a sail or rudder and a pickaxe, perhaps representing gas. Sinuous plant stems elegantly envelop these symbols. Central to the design is Hermes' caduceus, with fish-headed snakes and topped by his winged hat. This symbolizes the entwining of gas and electricity with commerce.



In 1930, after many stock emissions totaling 194 million francs, this certificate represented one bearer share valued at around 618 francs.

The Rise of Electricity

The practical invention of the incandescent bulb in 1878 by Thomas Edison revolutionized lighting. By 1882, Edison had wired DC electricity to a Manhattan community. However, George Westinghouse argued that AC electricity was more efficient for long-distance transmission and founded a successful electrical generation company in 1886.

After being mistreated by Edison, Nikola Tesla left to work for Westinghouse. In 1886, Tesla sold his patents for a polyphase AC system and an induction motor to Westinghouse, who then hired him as a consultant for a year. It was Westinghouse who illuminated the Chicago Columbian World's Fair in 1893 with a quarter of a million lights.

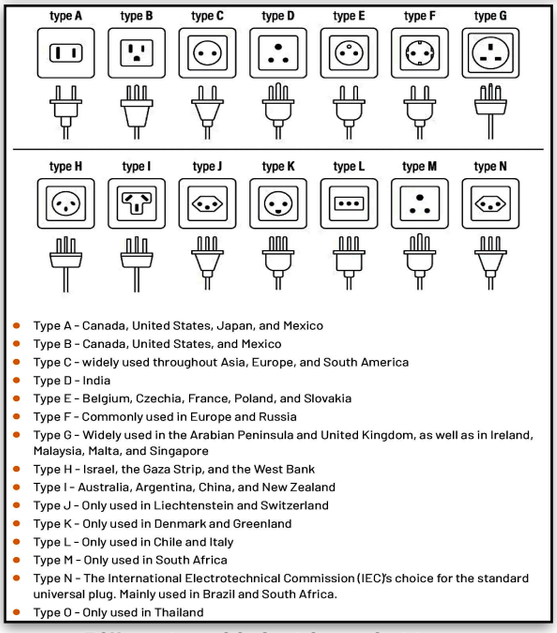
For decades, Edison and Westinghouse were arch-rivals, with Europeans and Americans engaged in the "War of Currents," debating the merits of DC versus AC electricity. Ultimately, Westinghouse's AC system prevailed.

The Gas and Electricity Merger

Electricity companies posed a threat to gas companies. They responded by incorporating electricity into their offerings, similar to how cable companies later added internet and telephone services to their TV packages.

Brian and Fisher of Manchester, UK, built the first gas works on the European continent in Brussels in 1819. An even larger facility opened in Laeken, a Brussels suburb, in 1875, with a modern addition in 1909. This Brussels General Gas and Electricity Company merged gas and electricity services.

In 1921, Europeans founded the International Council on Large Electric Systems to connect companies like this one. Despite a century of cooperation, each European country still maintains its own unique electrical sockets.



- Type A - Canada, United States, Japan, and Mexico
- Type B - Canada, United States, and Mexico
- Type C - widely used throughout Asia, Europe, and South America
- Type D - India
- Type E - Belgium, Czechia, France, Poland, and Slovakia
- Type F - Commonly used in Europe and Russia
- Type G - Widely used in the Arabian Peninsula and United Kingdom, as well as in Ireland, Malaysia, Malta, and Singapore
- Type H - Israel, the Gaza Strip, and the West Bank
- Type I - Australia, Argentina, China, and New Zealand
- Type J - Only used in Liechtenstein and Switzerland
- Type K - Only used in Denmark and Greenland
- Type L - Only used in Chile and Italy
- Type M - Only used in South Africa
- Type N - The International Electrotechnical Commission (IEC)'s choice for the standard universal plug. Mainly used in Brazil and South Africa.
- Type O - Only used in Thailand

Different world electric socket types

The Variety of Electrical Sockets

Europe uses a variety of socket types, including C, E/F, G, J, K, and L. The US uses types A (two prongs) and B (three prongs). Other countries have their own types: India uses D, Israel uses H, China and Argentina use I, South Africa uses M, Brazil uses N, and Thailand uses O. This makes fifteen different socket types worldwide!

By contrast, the European Union's recent decision to standardize mobile phone charging ports seems modest. By the end of 2024, all mobile phones, tablets, and cameras sold in the EU will be required to have USB Type-C ports.

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50
ГЕРБОВА МАРКА
30 30
ТРИДЕСЕТЬ СТ.
ГЕРБОВА МАРКА
10 10
ДЕСЕТЬ СТ.
Софийска Популярна Банка
Кооперативно кредитно дружество
АКЦИЯ
№ 16,759
за петдесетъ лева златни
Прѣдявительтъ настоящата акция
Г-нъ Ив. Франчев членъ на
Софийската Популярна Банка, участвува
въ всички права и задължения, прѣдвидени
въ устава на банката, съразмѣрно съ
сумата прѣдставлявана отъ
тази акция.
София, 19 г.
Прѣдсѣдатель
Членъ-касиеръ:

Bulgaria

SOFLOTER VOLKSBANK, 1915 #2786

Imagine this: It's early twentieth century Bulgaria, and while most folks are busy counting their money, Ivan Lazarov is transforming a humble Volksbank certificate into a visual feast. Blending Turkish-Ottoman flair with Art Nouveau pizzazz, he creates a 12.2 by 16.5-inch masterpiece that leaves Western eyes dazzled and intrigued.

The Volksbank Phenomenon

Bulgarians built their Volksbanks (people's bank) on the model of credit cooperatives, raising capital by issuing shares to members. Only members could get loans. In Bulgaria, the General Association of People's Banks controlled and supervised these banks, ensuring they operated smoothly and served the community's needs.

Lazarov's Sophia house with his sculpture

Life and Legacy of Ivan Stefanov Lazarov

The Bulgarian, Ivan Stefanov Lazarov, (1889-1952) graduated from the State Industrial School of Arts (now the National Academy of Art) in 1912 at 23. After teaching in schools, he studied sculpture under Professor Hermann Hahn at the Royal Academy of Fine Arts in Munich from 1917 to 1918. In 1919, he started lecturing there. They appointed him as a professor of sculpture in 1924, a position he held until his death in 1952. He also helped found the Native Art Society, promoting woodcarving, sculpture and pottery.

A Tribute to Dimcho Debelyanov

Lazarov also sculpted a monument to the poet Dimcho Debelyanov (1887-1916) — a lady sitting on the steps of his house in Sofia. The revered Bulgarian poet died from battle wounds. Lazarov sculpted his grave — a poignant tribute to him. In 1920, Debelyanov's friends collected and published his works posthumously under the title "*Poems*," which remain popular in Bulgaria to this day.

Back of stock certificate showing coupons until 1942

Debelyanov's grave with Lazarov's sculpture

A Lasting Legacy

People recognized Lazarov's contributions to art and culture throughout his life and beyond. In 1950, he became the first director of the Institute of Figurative Art Studies at the Bulgarian Academy of Sciences. His travels to France, Czechoslovakia, Italy, and Turkey enriched his artistic perspective, and his works continue to inspire today. His former house, turned museum, stands as a testament to his legacy, filled with 84 of his sculptures that silently tell the story of his life and art.

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https://nationalgallery.bg/visiting/къщи-музеи/house-museum-ivan-lazarov/#:~:text=130 years ago, in distant,whose example does not fade.
https://en.wikipedia.org/wiki/Dimcho_Debelyanov
https://en.wikipedia.org/wiki/Dimcho_Debelyanov#/media/File:Tombstone-Debelyanov.JPG

BANQUE DE COCHINCHINE

Ch. CRABBE, Grav.-Imp. 36, Rue de Lancry, Paris (9.000)

付攤期其分年每本股入收照按息利有所行銀本

諸位入股人照其寫明願入之股數交足外不得令其多交

此項股份票可准各股東為轉售及抵押等之用

BANQVE de COCHINCHINE

SOCIÉTÉ ANONYME

CAPITAL : 5 MILLIONS, DIVISÉ EN 20.000 ACTIONS DE 250 FRANCS

Statuts déposés en l'Étude de Me LANQUEST, Notaire à Paris

SIÈGE SOCIAL À PARIS

ACTION NOMINATIVE DE 250 FRANCS

LIBÉRÉE D'UN QUART

N° 04793

Délivrée à Monsieur Van Steenbrugghe Henri Anne, Désiré Propriétaire à Chassy-le-Roi 23 bis Avenue de Paris (Seine)

UN ADMINISTRATEUR : Paris le 24 Avril 1928 UN ADMINISTRATEUR :

Th. Lethes

Noël Pauls

南圻廣福興銀行

南圻廣福興銀行

TRAVAIL ASSOCIATION 磐 PAIX CRÉDIT

BC

IMP. CRABBE, PARIS

FOND DE GARANTIE Pre CRABBE Bte S.G.D.G.

2e VERSEMENT	3e VERSEMENT	4e VERSEMENT
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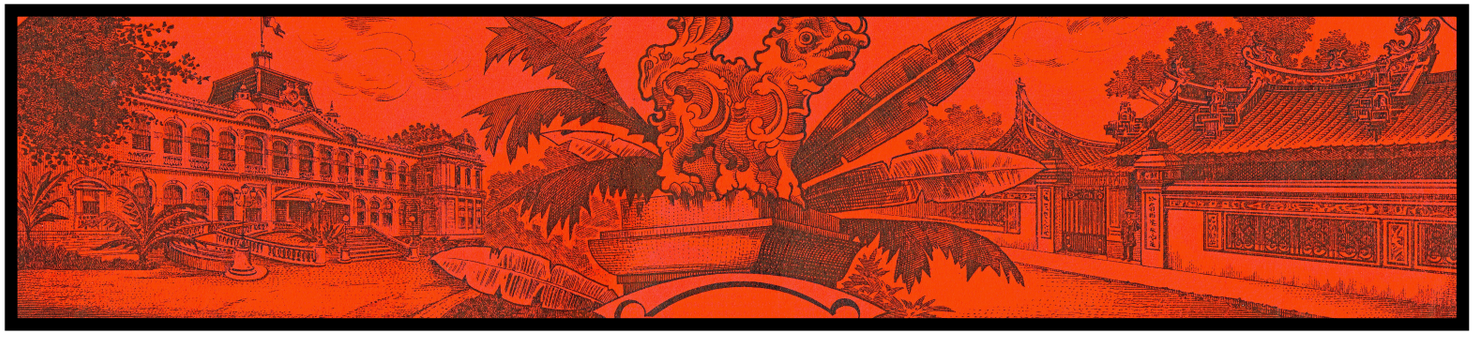
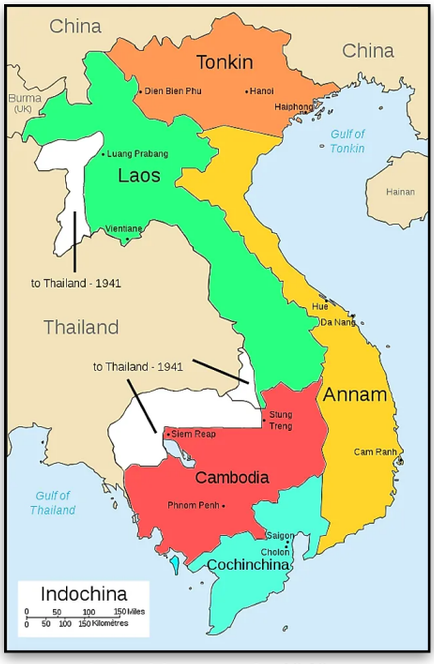
China

COCHINCHINE BANK 1908 #2142



Above, the French governor's palace in Saigon, below, rice paddies in Mekong Delta

Geographical Context
Cochinchine, a region in what is now South Vietnam, became a French colony in 1862. The area formed part of a plantation economy focused on rubber production. Previously, they called the North, center, and South of present-day Vietnam Tonkin, Annam, and Cochinchina (see below).



Indochina map in 1940s

The Indochina Peninsula comprises modern-day Vietnam, Laos, and Cambodia at its core, with Thailand, Myanmar, and Malaya to the West. In 1516, Portuguese traders named the area "Cochinchine" after the princely state of Cochin in India, where, in Goa, they had established a base in 1510.

Early Diplomatic Efforts
In 1822, the British East India Company sent the diplomat John Crawford to the region. In 1833, the US also dispatched a diplomat Edmund Roberts to the Far East with numismatic gifts for the King of Siam, the Mikado of Japan, and the Emperor of China. Roberts also visited Cochinchine, but like Crawford, he failed to establish diplomatic relations.

French Colonization
France occupied Cochinchine in 1858, and by 1887, it was part of what they renamed French Indochina, which now also included Tonkin, Annam, Laos, and Cambodia (see map above). French Indochina had grown into a vast colonial territory. For many, the name Indochina evokes images from the acclaimed movie "*Indochine,*" starring Catherine Deneuve.

Post-War Transition
After the Japanese occupation during World War II, France expelled Ho Chi Minh's Viet Minh army from Cochinchine. In 1949, France declared a unified Tonkin, Annam, and Cochinchine as the State of Vietnam, a separate country that existed until 1955. This entity claimed authority over the northern Democratic Republic of Vietnam (mostly Tonkin), controlled by Ho Chi Minh's communists, though it had no actual power there.

Inspired by Chinese and Soviet communists, Ho Chi Minh captured the French garrison at Dien Bien Phu in 1954. With the domino theory in mind, the US then became involved in the Vietnam War. They feared other regions would fall to communism if Indochina did. The war lasted from 1955 to 1975.

The Banks of Indochina & Cochinchine
In 1875, Paris established the Bank of Indochina, which printed banknotes. By 1898, they had unified Indochina's budget, with average annual imports of £10 million and exports of £6.7 million, primarily rice. France held monopolies on salt and opium. However, in 1900, much of the bank's operations moved to China to address the Boxer Rebellion, an uprising against foreign influence.

Distinct from the Bank of Indochina, France established the Bank of Cochinchine in Paris in 1908 with a modest capital of 5 million francs. This was a small sum compared to a substantial 200 million franc loan France extended in 1898 to build railway lines in Indochina.

The Certificate's Glimpse into History
The Cochinchine Bank's stock certificate is a visual marvel in red, gold, and black—colors significant in Chinese culture. On the upper left, you can see an engraving of the French governor's palace in Saigon, now the Reunification Palace. The bottom of the certificate depicts the rice paddies of the Mekong Delta, highlighting a major export in times past, and today.

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BANQUE INDUSTRIELLE DE CHINE

中滙實業銀行

SOCIÉTÉ ANONYME

CAPITAL SOCIAL: 150.000.000 DE FRANCS

DIVISÉ EN 300.000 ACTIONS DE 500 FRANCS CHACUNE
DONT 297.000 ACTIONS ORDINAIRES & 3.000 ACTIONS DE FONDATEUR

Statuts deposés suivant Acte reçu par Me LAVOIGNAT & Me MOYNE tous deux Notaires à Paris, le 15 Mars 1913 modifiés par les deliberations des Assemblées Générales des Actionnaires, des 19 Mai 1919, 28 Novembre 1919 & 7 Mai 1920

SIÈGE SOCIAL À PARIS

ACTION ORDINAIRE DE 500 FRANCS

AU PORTEUR

ENTIÈREMENT LIBÉRÉE

本銀行係無記名公司
資本一萬五千萬佛郎
分為三十萬股 每股五百佛
郎內普通股二十九萬又千份
發起人優先股三千份
本銀行章程於西曆一千九百
十三年五月經公證人拉福泉
先生暨穆亞納先生在巴黎核
定存證並於一千九百十九年
五月十九日十一月二十八日
及一千九百二十年五月又日
經股友各總會改訂
事務所設在巴黎

董事
董事

N°. 259061

Un Administrateur

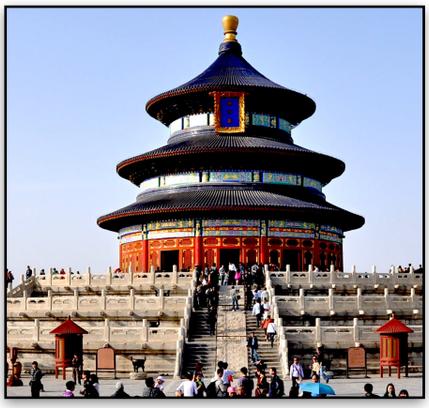
Un Administrateur
Par délégation spéciale du conseil

BANQUE INDUSTRIELLE DE CHINE
SOCIÉTÉ ANONYME

China

INDUSTRIAL BANK OF CHINA 1919 #2063

This stock certificate is a classic piece of Chinese scripophily, known for its rich historical and artistic value. Printed by Créte in Paris, it features an underprint of Beijing's Temple of Heaven (Tian Tan).



Temple of Heaven in Beijing

The base of the certificate showcases a city scene flanked by guardian lions (Fu), with symbols of longevity (Shou) at each base of the arch. Dragons (Lóng) on the arch represent positive power alongside the red insignia of the Banque Industrielle de Chine (BIC).

Subscriptions and Capitalization

- 1913, 3,000 founder's shares (nominative, i.e. non-bearer) at 500 francs = 1.5 million francs
- 1913, 87,000 bearer shares at 500 francs = 43.5 million francs
- 1919, 210,000 bearer shares at 500 francs = 105 million francs
- 5/15/1919, 60,000 bearer shares at 515 francs = 30.9 million francs
- November 1919 - May 1920 150,000 bearer shares at 665 francs =100 million francs

This brought the capital to 280 million francs. This certificate was a bearer share for 500 francs. An abonnement rubber stamp (top right) shows they paid the 0.1% stamp tax on the stock certificate.

Historical Context

In 1899-1901, a conservative anti-imperialist movement called the Boxers rebelled against eight foreign missions trying to control China. The Eight Nation Alliance defeated the Boxers and demanded 800 million ounces of silver in reparations.

In 1911, the anti-emperor Xinhai Revolution overthrew China's last emperor, Puyi, and established the Republic of China (1912-1949), with Sun Yet-sen as its first president. He ascribed the overthrow to Christian ideals taught by foreign missions. This upheaval sparked European interest in gaining a financial foothold in the new Republic.

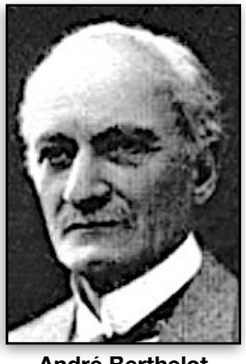
Puyi, last Qin Emperor ~1940

Sun Yat-sen, first ROC President 1912, overdressed is an understatement!

Yuan Shikai soon ousted Sun Yat-sen as president, but died in 1916, leaving China under warlord control.

European powers favored the British Hong Kong and Shanghai Bank and the German Deutsche-Asiatische Bank. However, France sought its own influence, especially after the 1911 revolution. France's government encouraged the Banque Industrielle de Chine (BIC) to lend the new Republic one-third of its capital in exchange for special privileges. As a result, French investors established the BIC in 1913 with 45 million francs.

Philippe Berthelot



André Berthelot

The Rise and Fall of BIC

André Berthelot, the BIC chairman, and his brother Philippe, head of Asian affairs at the French Foreign Office, played key roles in the bank's operations. Other French banks, like the Banque d'Indochina, showed little interest.

Example of BIC Currency $100

Yuan Shikai ROC President 1915-1916

After World War I, the BIC raised 600 million francs for a Chinese railway and issued its own banknotes. The bank was headquartered in Paris, with 25 foreign offices.

In the 1920s, Sun Yat-sen's Nationalist Party controlled South and Central China and frequently clashed with communists. After Sun's death in 1925, Chiang Kai-shek led the Nationalists against Mao Zedong's communist forces, who in 1949 drove them to Taiwan. The communist People's Republic of China (PRC) has ruled China since.

Despite its initial success, the BIC overextended itself, promising more money than it owned, leading to its collapse. Unfortunately BIC Chairman, André Berthelot engaged in insider trading. In 1921, the bank declared bankruptcy and closed. The following year, France dismissed Philippe Berthelot, and jailed BIC Chief Director Pernotte. The bank agreed to pay off its liabilities within 25 years.

Creditors received a "bon," a promise to repay within 25 years. In 1925, the Banque Franco-Chinoise took over the remaining assets. BIC continued to trade on the Paris Stock Exchange until 1934 and was liquidated in 1950. However, it continued operations in China until 1960, when it became part of the giant French bank, Société Générale.

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https://upload.wikimedia.org/wikipedia/commons/5/5d/Philippe_Berthelot.jpg
https://upload.wikimedia.org/wikipedia/commons/d/d9/孙中山肖像.jpg
https://upload.wikimedia.org/wikipedia/commons/b/b4/Pu_Yi,_Qing_dynasty,_China,_Last_emperor.jpg

SLAVIA

GEGENSEITIGE VERSICHERUNGSBANK

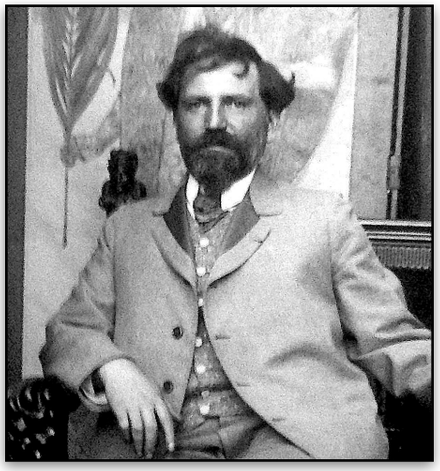
Lebensversicherungsvertrag Nr. 459.374 Frau Elfriede Junek - Ofner.

Czech Republic

SLAVIA MUTUAL INSURANCE BANK, PRAGUE, 1940 #2170

This isn't just any document; it's a piece of history wrapped in art. What you're looking at is a life insurance policy worth 30,000 Kc, issued in 1940. The Kc stands for Koruna Czech, the currency Czechoslovakia used before she split into the Czech Republic and Slovakia in 1993. Today, Prague, the vibrant capital of the Czech Republic, carries forward this rich legacy.

The cover of this insurance policy is a masterpiece in itself, adorned with Art Nouveau designs by the renowned artist Alphonse Maria Mucha. His signature, etched at the bottom around 7 o'clock, dates back to 1907, adding a personal touch to this extraordinary artifact.



Alphonse Mucha in his Paris studio, 1899

The Master Behind the Art

Alphonse Mucha, born in 1860 in Moravia (now part of the Czech Republic). He initially made his living as a singer, funding his art education along the way. His journey took him to Vienna in 1879, where he worked on theatrical designs. Two years later, fate smiled upon him when Count Eduard Khuen Belasi of Mikulov hired him to paint murals in his castle. He also sponsored his further studies at the Munich Academy of Fine Arts.

By 1887, Mucha moved to Paris, the beating heart of the art world. It was there in 1894 that he volunteered to create a poster for the legendary actress Sarah Bernhardt. His poster for the melodrama *Gismonda,* which stood six feet tall, was an overnight sensation (see right). Sarah Bernhardt was so captivated by Mucha's distinctive style that she signed a six-year contract with him, commissioning posters, costumes, calendars, and menus.

The Birth of Art Nouveau

Mucha's style, characterized by its sinuous, flowery lines, became synonymous with *Art Nouveau*, ('new art' in French), or *Jugendstil,* ('youth style' in German). The 1890s saw a surge in the popularity of large, colorful posters, thanks to advancements in color lithography. Artists like Eugene Grasset and Berthon joined Mucha in propelling the Art Nouveau movement, paving the way for the Art Deco era from 1919 to 1939.

Mucha's Later Life and Legacy

In 1906, Mucha married Marie Chytilová. They spent the next few years in New York City before returning to Europe, then settled in Prague. There, Mucha continued to create, producing murals, postage stamps, and banknotes. He published a famous pictorial book, *Le Pater,* in 1899, based on the Lord's Prayer. He then embarked on his magnum opus, *The Slav Epic*, a series of 20 large paintings depicting the history of the Slavic people.

Mucha was deeply patriotic and an ardent supporter of the nascent Czechoslovak Republic, for which he designed banknotes. Despite his many years in Paris, his heart remained with his homeland.

Alphonse Mucha's Paris France design

When the Nazis invaded Czechoslovakia in 1939, Mucha was among the first to be arrested because of his nationalistic activities and Freemasonry involvement. Tragically, he succumbed to pneumonia shortly after his release in July 1939.

This insurance policy is more than a financial document; it's a canvas that tells the story of a man whose art left an indelible mark on history. His intricate designs make it a treasure trove of cultural heritage, capturing the essence of a bygone era through the eyes of one of its greatest artists.

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Mucha's famous poster advertising Sarah Bernhardt in *Gismonda* in 1895

شركة أسمنت بورتلاند طره المصرية بالقاهرة

SOCIÉTÉ ÉGYPTIENNE DE CIMENT PORTLAND
TOURAH-LE CAIRE

SOCIÉTÉ ÉGYPTIENNE DE CIMENT PORTLAND TOURAH-LE CAIRE

مركز الشركة القاهرة
شركة مساهمة مصرية رأس مالها
٢,١١٨,٧٤٨ جنيه مصري
مقسمة إلى ٥٢٩,٦٨٧ سهما قيمة كل منها ٤ جنيهات مصرية
مدفوعة بأكملها
صدر بتأسيسها مرسوم ملكي في ٢٣ يونيو سنة ١٩٢٧
منشور بالوقائع المصرية بعدد رقم ٥٨ المؤرخ في ١٩٢٧/٧/٧
مقيدة بالسجل التجاري بمديرية الجيزة تحت رقم ١٥٨٧
سهم واحد قيمته ٤ جنيهات مصرية
لحامله

SIÈGE SOCIAL: LE CAIRE
SOCIÉTÉ ANONYME ÉGYPTIENNE
AU CAPITAL SOCIAL DE LÉG. 2.118.748.–
Représenté par 529.687 actions de Lég. 4
ENTIÈREMENT LIBÉRÉES

CONSTITUÉE PAR DÉCRET ROYAL LE 23 JUIN 1927
PUBLIÉ AU JOURNAL OFFICIEL No 58 DU 7/7/1927
R. C. Ghizeh 1587

Une Action de Lég. 4
AU PORTEUR
No 528205

عضو مجلس الإدارة — عضو مجلس الإدارة
Un administrateur: — Un administrateur:

Une Action de Lég. 4

سهم واحد
قيمته ٤ جنيهات مصرية

SOCIÉTÉ ÉGYPTIENNE DE CIMENT PORTLAND TOURAH LE CAIRE

Meier & Cie. Schaffhouse/Suisse

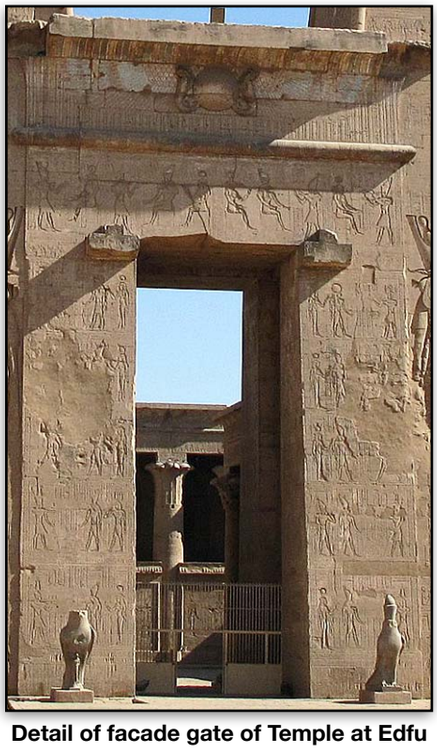
France

EGYPTIAN PORTLAND CEMENT COMPANY, TOURAH-LE-CAIRE, 1927 #2145

Tourah-le-Caire and its Ancient Treasures
Tourah-le-Caire (Tura today), was an ancient mining town located 12 miles south of Cairo. It holds a storied past that echoes through the ages. In ancient Egypt, people prized limestone from this region and used it for the grandest of tombstones, sarcophagi, temples, and the Great Pyramid of Khufu. They may also have used it to construct the temple of Ptah in Memphis. Unlike open-pit marble mining today, ancient miners tunneled through the earth, leaving behind a labyrinth of passages (later used by the British during World War II).

This certificate, printed on paper reminiscent of papyrus (see above), showcases the front gate of the famous Temple of Edfu, the best-preserved temple in Egypt. Built by the Ptolemies between 237 and 57 BCE, it started with Ptolemy III and ended with Ptolemy XII.

Facade of Temple at Edfu, Egypt



Detail of facade gate of Temple at Edfu

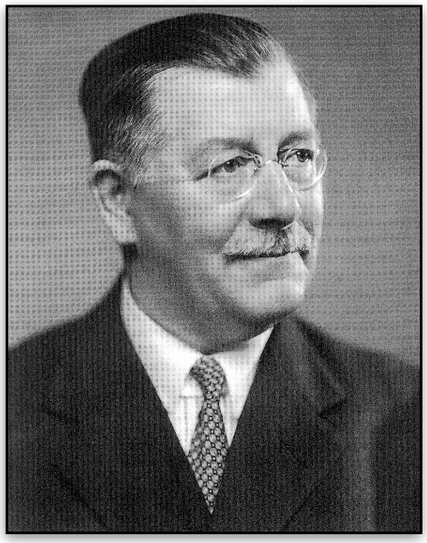
This temple was a testament to their legacy. Viewed as gods incarnate rather than just speaking to gods, the Ptolemies embraced traditions like marrying their siblings to maintain divine purity. Mediterranean people back then were shocked, but the local Egyptians embraced it.

In 391 CE, the Roman Emperor Theodosius persecuted pagans, leading Christians to remove many of Edfu temple's stone carvings. Over time, drifting sands buried the temple until a French archaeologist rediscovered it in 1860.

Each bearer share of this certificate held a value of 4 Egyptian pounds (about $20 in 1927), with a capitalization of around $10.5 million.

Ernst Schmidheiny and the Birth of an Industrial Giant
Ernst Schmidheiny, a Swiss industrialist and politician, founded the cement plant at the site of the Tourah-le-Caire limestone mines, turning it into a blue-chip Egyptian company. Dow Jones coined the term in 1923 for stocks over $200. Blue poker chips had the highest value.

Born in 1871, Schmidheiny joined his father's brickwork company in 1902. Together with his brother Jacob, they started vineyards and a Portland cement cartel cooperative in 1910 in Switzerland. By 1912, he had merged five Swiss brickworks.



Ernst Schmidtheiny

During World War I, Schmidheiny became a key negotiator and later ventured into politics.

In 1927, he founded the Egyptian Portland Cement Company, which then became Egypt's flagship company. Tragically, he died in a plane crash in the Sinai desert in 1935, but his legacy endured. His printed and actual signatures grace the certificate.

A New Era and the End of an Epoch
In 1961, they cancelled the certificate with a rubber stamp. How do we know the date? By calculating how many coupons the owner removed.

The 1952 Egyptian Free Officers Movement which toppled King Farouk began the Egyptian Revolution. In 1956, one officer, Gamal Abdel Nasser, became president and nationalized the Suez Canal, by then mostly British owned. Because of this, England, France, and Israel invaded. None of them told US President Eisenhower and even misled him about the target and timing. This put him in the awkward position of siding with Nasser. The US and UN forced them to withdraw.

Arab socialism, funded by Aswan Dam electricity interests, replaced free enterprise. In 1961, Nasser, Jawaharlal Nehru, and Tito pioneered the Non-Aligned Movement, a group of 128 countries seeking independence from major power blocs. This shift effectively put most big Egyptian businesses and nearly all foreign trade under Egyptian government control. Thus, 1961 marked the end of the company when it came under state ownership.

The Marvel of Concrete
The ancient Romans mastered the use of concrete, even developing a formulation for underwater cement. Modern cement production involves grinding limestone and clay into a powder called raw meal, which is then heated in a kiln to 2,700°F. This process produces clinker, primarily composed of calcium silicates. When ground with gypsum (naturally occurring calcium sulphate), clinker forms cement. When you mix cement with aggregate (gravel), it becomes concrete.

Concrete production accounts for 8% of global carbon emissions and is the second most used substance in the world after water. Portland cement, the most common variety, is used for concrete, grout, mortar, and stucco. The bricklayer Joseph Aspdin invented Portland cement in 1824, naming it after a high-quality stone from the Isle of Portland in Dorset, UK.

A Timeless Material
Nabataean Bedouins in southern Syria were among the first to use concrete around 6500 BCE, constructing underground cisterns to survive in the desert. The ancient Egyptians also employed concrete to build their pyramids. The Romans used concrete extensively, including for the Pantheon Dome in 127 CE, which still stands today. Their mixture of volcanic ash, lime, and water created a robust mortar that, when combined with aggregate, formed durable concrete. This technique even worked underwater, a feat modern Portland cement cannot match. Today, we use UWC (Underwater Concrete) for such applications.

Conclusion
The legacy of Tourah-le-Caire is a fascinating blend of ancient ingenuity and modern industrial prowess. From the limestone quarries that built Egypt's greatest monuments to the cement factories that fueled its 20th-century growth, the story of this region is a testament to human creativity and resilience.

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COMPAGNIE IMPÉRIALE DES CHEMINS DE FER ÉTHIOPIENS

Société anonyme constituée conformément aux statuts déposés le 7 Août 1896, chez Me REY, notaire à Paris.

AU CAPITAL DE 8.000.000 DE FRANCS, PORTÉ A 18.000.000 DE FRANCS

Par décision de l'Assemblée générale extraordinaire des Actionnaires du 12 Décembre 1899 et divisé en 36.000 Actions de 500 Francs chacune.

SIÈGE SOCIAL A PARIS

ACTION DE CENT FRANCS

Action de Cinq Cents Francs au Porteur

ASSEMBLÉE GÉNÉRALE DU 4 JUIN 1910 CAPITAL RÉDUIT à 3.600.000 frcs

N° 01,683

ENTIÈREMENT LIBÉRÉE

UN ADMINISTRATEUR,

Paris, le 14 Décembre 1899.

IMPRIMERIE CHAIX, RUE BERGÈRE, 20, PARIS. — 25289-10-99. — (Encre Lorilleux.)

France — Ethiopia

IMPERIAL ETHIOPIAN RAILROAD COMPANY, 1899 #1953

The Certificate
The way the Arabs with their camels line up next to the railway line is reminiscent of a scene from *Lawrence of Arabia*. Picture this: a line of camels carrying goods, waiting for the train to pull up, to transport goods from Ethiopia. A man on horseback, shaded by a decorative umbrella, wears a crown suggesting King Menelik II of Ethiopia, who ruled from 1889 to 1913.

Below is an 1882 one birr coin displaying his crowned bust. The reverse side features the crowned lion passant holding the ribboned cross of Ethiopia.

Emperor Menelik II on a 1 Birr coin

Above the scene on the stock certificate, you can see the same crowned Ethiopian lion passant. In 1889, Menelik II signed a treaty with Italy, granting them parts of Northern Ethiopia in exchange for a substantial shipment of arms, including 30,000 rifles.

Behind the emperor's umbrella on the certificate, a flag, either French or Italian, flutters. The certificate's indented top edge, designed to match the stubs the Paris based company kept on record, served as an anti-counterfeiting measure.

French artist Louis Charles Bombled (1862-1927) engraved this sunny scene. Known for his prolific lithographic and engraved book illustrations, he also engraved military scenes, Parisian life, and did paintings of horses. He studied at the École des Beaux-Arts and exhibited at the Salon des Artistes Français in 1886.

Emperor Menelik II
Emperor Menelik II was a great modernizer of Ethiopia. In 1894, he partnered with France to build a railroad from Addis Ababa to the port of Djibouti in the then French colony of French Somaliland. Railroad construction began in 1897, shortly after Ethiopia's victory at the Battle of Adwa against Italian imperialists (see top right). This bond increased the company's capitalization in 1899 from 8 to 18 million francs, leading to vital sea access for imports and exports.

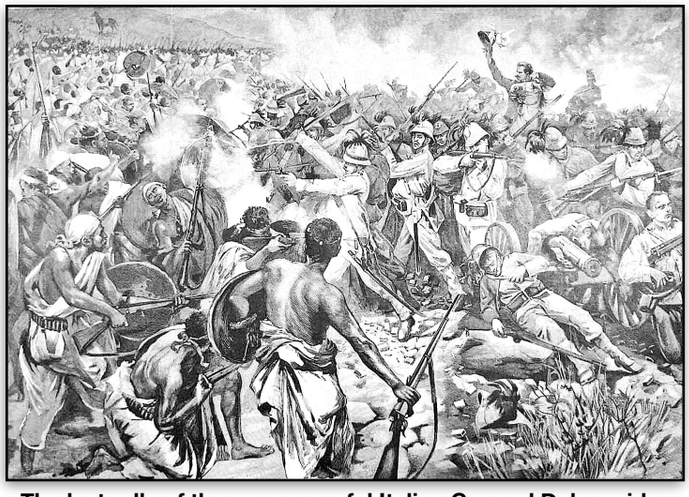
Written in Ethiopic (Ge'ez script) and French, the security started as a 500 franc bearer share. By 1899, the French company had increased their bonds to 36,000 shares, raising capitalization to 18 million francs for the Addis Ababa-Djibouti railroad. An abonnement stamp shows taxes paid.

However, by 1904, construction halted because of insufficient capital and in 1907, they liquidated the company.

Current Addis Ababa-Djibouti railroad

Two years later, Ethiopia nationalized all railroads, making the company state-owned.

The certificate is rubber-stamped, "SHARE OF 100 FRANCS and GENERAL ASSEMBLY OF JUNE 4, 1910, CAPITAL REDUCED TO 3,600,000 francs," reducing the bond share value by 80%. All 48 coupons remain unclaimed, suggesting the company liquidated for pennies on the dollar.



The last rally of the unsuccessful Italian General Dabormida, in the Battle of Adwa in 1896. Ethiopians defeated Italy with the very rifles they bought from them.

Despite this, the French government remained eager to make their colony of French Somaliland the primary conduit for Ethiopia's imports and exports. France started another company, proposing a loan from the Banque de l'Indochine to take over the concession.

France used the Banque de l'Indochine somewhat like a central bank in 1875, to finance colonial development in Asia. But it would later include financing in French India, Djibouti, and Polynesia.

They called the new Ethiopian railroad the "Compagnie du Chemin de Fer de Djibouti à Addis-Ababa" (Djibouti to Addis Ababa Railroad Company), taking over the assets of the Imperial Ethiopian Railroad Company.

What is now Djibouti has a long history:

- Kingdom of Axum: 100-940 CE
- Various sultanates until the 1800s
- French Somaliland: 1883-1967
- French Territory of Afars and Issas: 1967-1977
- Independence as Djibouti: 1977

After consultations with England and Italy, the new French railroad resumed construction of the one-meter gauge railroad, now known as the Ethio-Djibouti Railway, continuing until 1917.

Ethiopia nationalized the railroads in 1909. But, by the 1950s, the Ethio-Djibouti Railway faced increasing competition from roads. They eventually closed in the 2000s because of a lack of spare parts. However, in 2017, a new standard gauge electric train replaced the old meter-gauge steam locomotives (see top map).

This certificate is a testament to the era of rapacious European colonization of African countries and their subsequent investments in modernization.

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SOCIÉTÉ CIVILE

Constituée suivant acte passé devant Mes PORTEFIN et son collègue, notaires à Paris, le 17 Avril 1880

POUR LE RECOUVREMENT DES **15 %** DES PRODUITS NETS

DE LA

COMPAGNIE UNIVERSELLE DU CANAL MARITIME DE SUEZ

FONDS SOCIAL DIVISÉ EN 84,507 PARTS OU 422,535 CINQUIÈMES DE PARTS

Les Cinquièmes de Part ont été créés, suivant délibération de l'Assemblée générale des Porteurs de Parts, en date du 15 mai 1882, déposée à Me PORTEFIN.

Les quinze pour cent dont les recouvrement et répartition font l'objet de la Société ont été attribués par la *Compagnie Universelle du Canal Maritime de Suez* au Gouvernement Égyptien, aux termes de l'article 63 des Statuts de ladite Société, constituée en Egypte le 5 Janvier 1856, en conformité du décret de concession rendu le même jour par Son Altesse le Vice-Roi. — Ils ont été apportés à la Société Civile par l'ayant droit du Gouvernement Égyptien avec tous les avantages y attachés dans la proportion des revenus de la Compagnie.

Le *Comptoir d'Escompte de Paris* est constitué mandataire pour toucher les quinze pour cent de produits et les répartir.

Certificat de UN CINQUIÈME de Part au Porteur

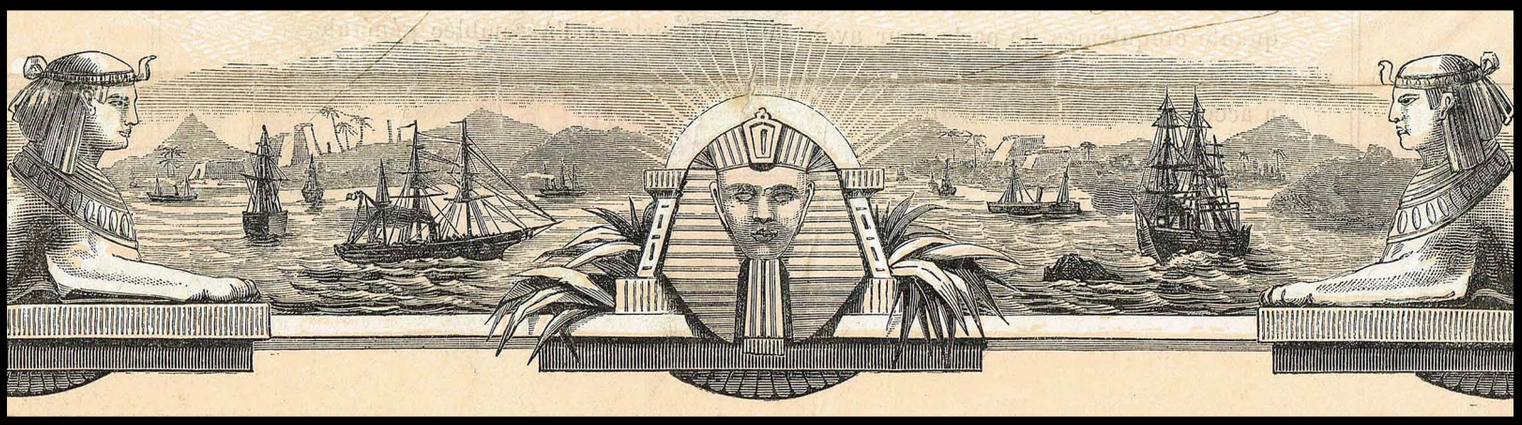
N° 030,474

Le présent Certificat donne droit, jusqu'à la fin de la concession de la Compagnie Universelle du Canal Maritime de Suez *(1968), à 1/422,535me des quinze pour cent des produits nets à recevoir après l'encaissement du dividende dont les Statuts (art. 64) indiquent le paiement au 1er juillet de chaque année.*

PARIS, LE 15 MAI 1882.

UN ADMINISTRATEUR
DU COMPTOIR D'ESCOMPTE DE PARIS,

POUR LA SOCIÉTÉ CIVILE :
LE DÉLÉGUÉ DU COMPTOIR D'ESCOMPTE DE PARIS,
MANDATAIRE STATUTAIRE,



France

UNIVERSAL SUEZ CANAL COMPANY, 1882 #2138

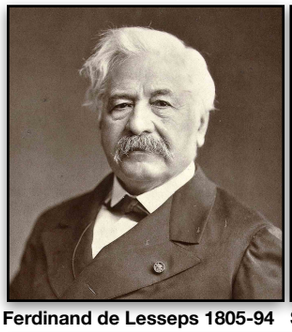
Properly called the Universal Company of the Maritime Canal of Suez, most just call it the Suez Canal Company. In 1856, it granted a 15% concession of their income to Egypt. But Egyptian debt got out of hand and in 1880, a French Bank paid Egypt 22 million francs cash for that 15% concession. The bank securitized that borrowing with these certificates, presumably sold for about 50 francs a piece, then about $10 US. Suez Canal stock pieces are rare and sought after.

In 1854, the visionary Ferdinand Lesseps, a group of Frenchmen, and the Egyptian ruler, Sa'id Pasha, organized a canal concession, which they replaced with another concession in 1856. Though Pasha owed fealty to the Ottomans, he was in practice independent. Ownership was to revert to Egypt in 99 years.

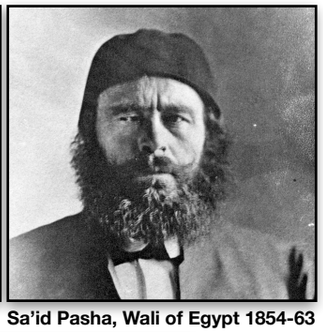
The Certificate

Gustave Fraipont, a Belgian who became French, designed the certificate with temple columns and attractive frieze incorporating a phoenix and Tutankhamen masks. At the base is a maritime canal scene bordered by two sphinxes, with another Tutankhamen mask at the center. The certificate underprint shows the head of a pharaoh. Fraipont, also a professor of drawing, designed several other stock certificates and posters.

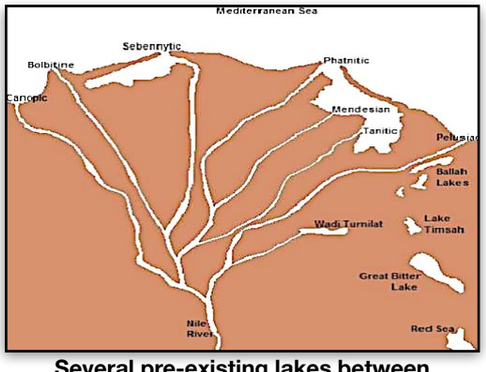
Gustave Fraipont 1849-1923



Ferdinand de Lesseps 1805-94



Sa'id Pasha, Wali of Egypt 1854-63



Several pre-existing lakes between Red Sea and Mediterranean seen on right

The 1856 agreement allocated 10% of profits to the founders, 15% to Egypt, and 75% to shareholders. Each canal company director (32 in total) served for eight years.

Lesseps organized an IPO in 1858 of 400,000 shares of 500 francs each (200 million francs), equivalent to $4.6 billion in today's gold value.

At first, Britain was against the canal. Thus, they, the US, Russia, and Austria, bought no shares. About 22,000 Frenchmen bought 200,000 shares, and Sa'id bought about 177,000 shares (44% of its stock). Ottomans and other private citizens bought the rest.

Illustration of Suez Canal Grand Opening in 1869

Excavators extracted around 100 million cubic meters of soil. At the 1867 Paris Exposition, they tried to sell another 100 million francs of 50-year bonds to supplement the 20 million already invested.

In 1869, the opening ceremonies included 60 ships, many entertainers, recitations of the Koran, prostitution, dancing bears, tight-rope walking, snake charming, etc.

Original shares had yielded 200 million francs. Legal wrangling yielded another 84 million francs. This, and another bond issue of 100 million francs more than covered total costs.

Initial tonnage through the canal was under 1 million for the first three years (1869-1872). And even by 1874, was only 2.4 million tons, well below their projected 5 million tons.

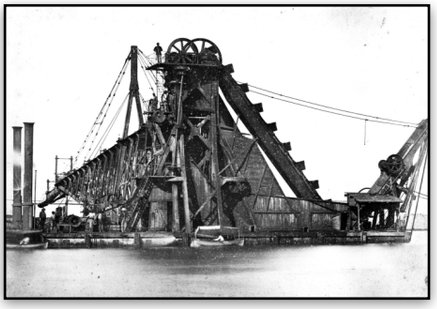
Egyptian Politics

Ismail Pasha, Sa'id's successor, borrowed $160 million for further infrastructure projects in Egypt. By 1875, Egypt's debt ballooned to $550 million. She could not pay this off and no bank would bail them out. So, the British Prime minister, Benjamin Disraeli, arranged a £4 million loan ($22 million) to buy out Ismail's 177,000 shares, giving Britain a 44% ownership stake in the canal.

In 1876, to further help resolve Egypt's debt, a French bank agreed pay Egypt 22 million francs for their 15% of the canal's income (this stock).

Four years later, Egypt rioted against European interests, and Egyptian nationalists rose against the new Ottoman Viceroy. Britain landed an army in 1882, seizing the canal, making Egypt a protectorate.

Britain declared Egypt independent in 1922, but continued to operate the canal with the French. The canal remained very lucrative and strategically important. It shipped oil from the Middle East and provided easy access to European colonies in East Africa. During the Second World War, the canal speeded troop movements to Malaya India, and Australia.



French bucket-chain excavator 1860s

Suez Egyptian Nationalization

In 1952, a military coup overthrew King Farouk in Egypt. Four years later, Colonel Nasser became prime minister and nationalized the Suez Canal. This prompted a failed military intervention by Britain and France. They did not inform the US, which horrified Eisenhower, who pushed them to withdraw. The world now knew that British and French power was declining, and that they could no longer act without US support.

Suez Canal from space 2016

This stock certificate had 174 coupons, intended to last from 1882 to 1968. It stands as a silent witness to the dramatic events and political upheavals surrounding the Suez Canal. Its unclaimed coupons, stopping at 1950, reflect the turbulent times when the Muslim Brotherhood demanded the British leave Suez. This piece of history encapsulates the era of European colonization and the strategic importance of the Suez Canal, still a vital waterway to this day.

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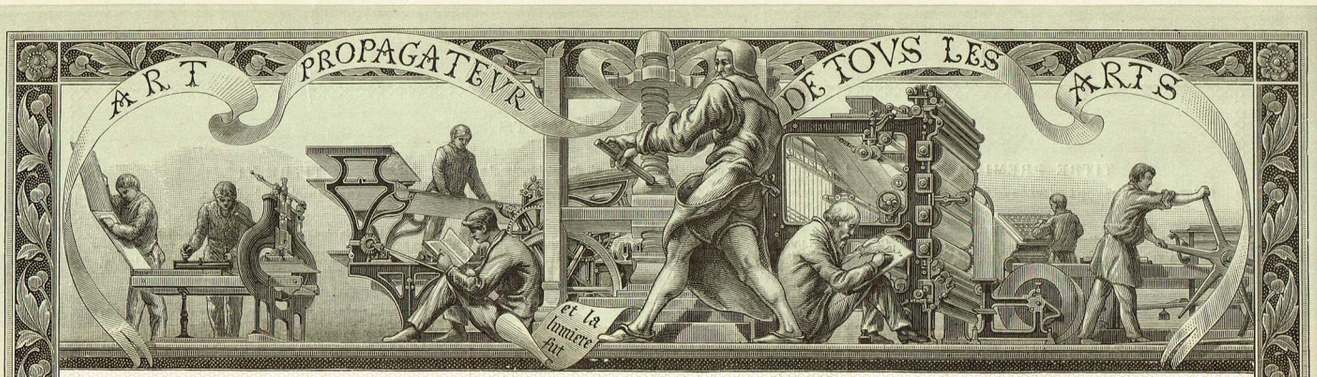


Anciennes Maisons QUANTIN, MOTTEROZ, MOREL et MARTINET

LIBRAIRIES-IMPRIMERIES RÉUNIES

Société anonyme constituée les 29 Juillet et 1er Août 1882, suivant acte passé devant Me Portelin et son collègue, notaires à Paris. — Modifiée par délibération de l'Assemblée générale extraordinaire des Actionnaires du 24 Mai 1890

CAPITAL SOCIAL : CINQ MILLIONS DE FRANCS, DIVISÉ EN DIX MILLE ACTIONS DE CINQ CENTS FRANCS

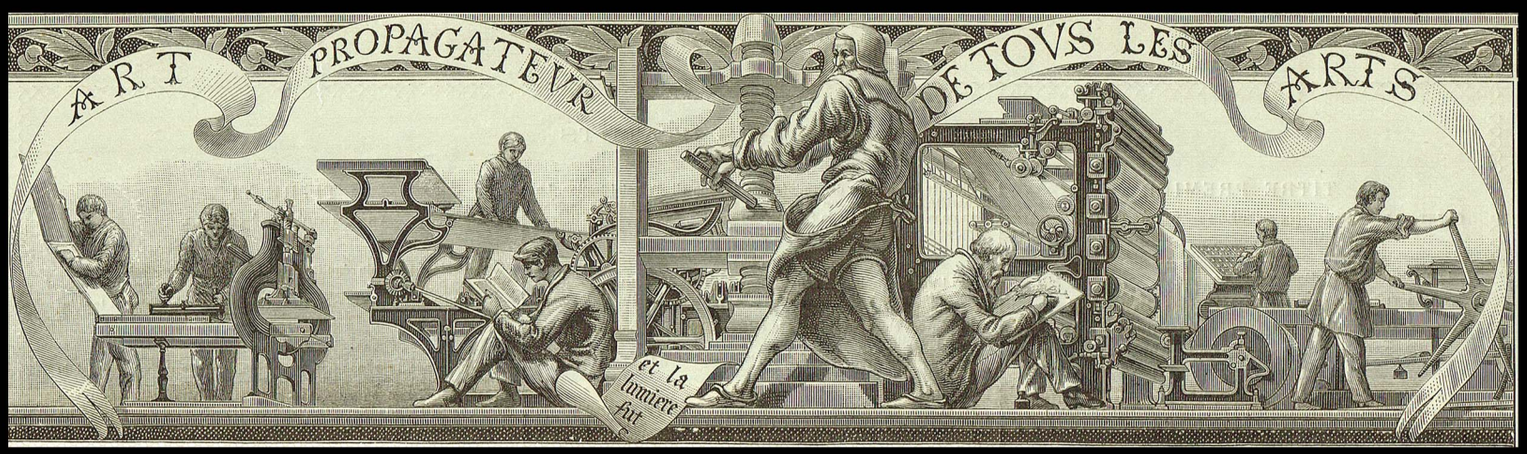
Action de Cinq Cents Francs au Porteur

ENTIÈREMENT LIBÉRÉE

Un Administrateur. N° Un Administrateur.

LIBRAIRIES-IMPRIMERIES RÉUNIES

Imp. r. C. — Motteroz.



France

LIBRARY PRINTERS, 1890

#2794

The Certificate
This printing company started in 1882 as a merger of several Parisian companies owned by the old established printing houses of Martinet, Motteroz, Quantin, and Librairie Morel. The title means, *United Bookstore Printing Company*. The certificate is a bearer share for 500 francs (about $100 at the time).

In 1882, they issued 15,000 shares of 60 francs for a capitalization of 900,000 francs. However, in 1890, they issued this certificate for an extra stock capital of 5 million francs (10,000 shares of 500 francs).

The engraving at the top says, "Propagator of all the arts," referring to literature, history, science, fine arts, music printing, etc. In the center of the panel, a medieval printer operates a wooden screw press. This could be the engraver's invention, or a famous Parisian printer like Robert Estienne (1503-1559). Known as Printer to the King, Estienne produced a Thesaurus of the Latin language, and was the first to print the New Testament divided into standard numbered verses. Catholics persecuted him, so he fled to Geneva and published works of John Calvin. Behind him are production facilities from the late 1800s with different printing presses.

Robert Estienne, printer

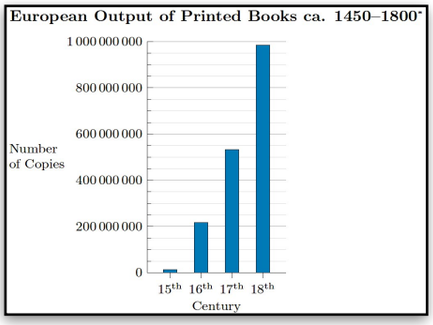
The Printers
They published illustrated books, especially on art and architecture, like *The Description of the Chateau of Coucy* by Viollet-le-Duc. The British Museum, the Metropolitan Museum of Art in New York, and many major museums have copies of their books.

Etching in Description of the Chateau of Coucy

History of Printing
Ts'ai Lun, a Chinese palace advisor, invented paper around 105 CE. Travelers along the Silk Road brought back its secrets starting around 500 CE. But scholars, especially monks, still wrote each book out by hand, a laborious process. In the 200s CE, the Chinese started printing woodblock books. A century later, they used moveable type made from baked clay. In the 1430s, Italians used intaglio copper plates to print single sheets of paper.

Around 1440, Johannes Gutenberg invented movable metal type and printed a bible in Latin, using lampblack mixed with oil and pine resin as an ink. Artisans could also color woodcuts or intaglio by hand.

Books available in Europe increased from about 15 million in the 1400s to 200 million in the 1500s. From 1440 to 1500, from Gutenberg's shop in Mainz, hundreds of presses spread all over Europe:

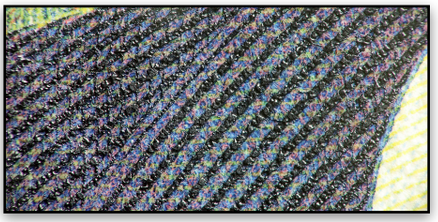


By 1500, there were 282 printing presses in Europe

Modern Printing
Three types of printing are common on securities and banknotes today, letterpress, intaglio and lithography. A stereomicroscope is best for seeing each method and these photos are a second best. Letterpress is like an old typeface that presses into the paper, indenting it on the other side. Under magnification, there may be voids where the ink does not fill.

French assignat showing letterpress and indentation on back

Blue lithography and 450 in letterpress



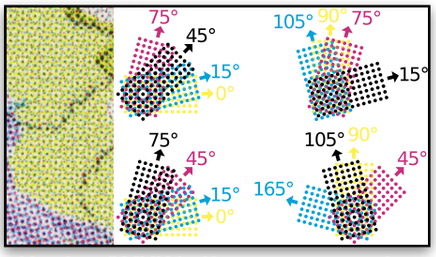
Background lithography and superimposed intaglio black stripes. Stripes show beading and a three dimensional effect.

Lithography uses a special stone which applies ink to the page without embossing it, leaving a fuzzy border (see top picture). Intaglio uses a thick ink that builds up on the surface of the page. If you run your fingernail over it, you can feel it sticking up above the surface of the paper. I show a modern ink-jet printer below with random dots of four colors of ink (CMYK for cyan, magenta, yellow and black).

Ink jet computer printer, many dots. but no rosettes as dots are more random

Early printers could paint by hand. They also used woodcuts, which they could overlay with different colors, and later the same with lithography (first invented in 1796).

William Talbot, an English photography pioneer, invented half tone printing in 1852. It simulates continuous tone images using multiple small, regularly spaced dots. If separated at different screen angles with CMYK inks, this avoids a Moiré effect and looks like rosettes under magnification shown below. Printing has come a long way!



Varying CMYK halftone screen angles create rosettes, and remove Moiré effect

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SOCIETE FONCIERE FRANCO-TUNISIENNE SOCIETE ANONYME

RÉGENCE DE TUNIS

SIÈGE SOCIAL : 39, rue Labruyère A PARIS.

AGENCE A TUNIS 9, rue du Danemark

SOCIÉTÉ

FONCIÈRE FRANCO-TUNISIENNE

HYPOTHÉCAIRE, IMMOBILIÈRE & DE COLONISATION

SOCIÉTÉ ANONYME

CAPITAL SOCIAL : { Init. 1.000.000 fr. / Autᵉ 4.000.000 fr. } divisé en Actions de 100 fr. chacune.

Statuts déposés chez Mᵉ DANVIN, Notaire à Boulogne-sur-Seine

ACTION. ABONNEMENT. 2/10 EN SUS 5ᶜ POUR 100ᶠ SEINE

Action de Cent Francs au porteur

ENTIÈREMENT LIBÉRÉE

N° 00,890

Paris, le 22 Mars 1897

UN ADMINISTRATEUR, Legrand

UN ADMINISTRATEUR,

Le présent titre est propriétaire d'un bon de Capitalisation de 100 francs (série D) portant le nº 01,662 *remboursable en 75 ans par la Société : La Capitalisation, Société anonyme au Capital de 5 millions de francs, dont le siège est à Paris, Rue Louis-le-Grand, nº 3, au moyen de tirages au sort trimestriels (Janvier, Avril, Juillet et Octobre de chaque année). La sortie du dit bon, à l'un des tirages précités, entraînera de plein droit l'annulation du présent titre qui sera remplacé par une action de jouissance. En vertu de la décision de l'Assemblée générale des actionnaires, constitutive de la Société, le dit bon a été déposé dans la caisse sociale après avoir été reçêtu du numéro de la présente action.*

CRABBE. GRAV. IMP. 36, R. DE LANCRY, PARIS.

FOND DE GARANTIE BREVETÉ S.G.D.G. PROCÉDÉ CRABBE.

SOCIETÉ FONCIÈRE FRANCO-TUNISIENNE SOCIÉTÉ ANONYME ACTION N° 00,890 Quinzième Coupon de Dividende 15	SOCIETÉ FONCIÈRE FRANCO-TUNISIENNE SOCIÉTÉ ANONYME ACTION N° 00,890 Seizième Coupon de Dividende 16	SOCIÉTÉ FONCIÈRE FRANCO-TUNISIENNE SOCIÉTÉ ANONYME ACTION N° 00,890 Seizième Coupon d'Intérêt 16 *Payable le Premier Janvier 1913*	SOCIÉTÉ FONCIÈRE FRANCO-TUNISIENNE SOCIÉTÉ ANONYME ACTION N° 00,890 Quinzième Coupon d'Intérêt 15 *Payable le Premier Janvier 1912.*
SOCIETÉ FONCIÈRE FRANCO-TUNISIENNE SOCIÉTÉ ANONYME ACTION N° 00,890 Treizième Coupon de Dividende 13	SOCIETÉ FONCIÈRE FRANCO-TUNISIENNE SOCIÉTÉ ANONYME ACTION N° 00,890 Quatorzième Coupon de Dividende 14	SOCIÉTÉ FONCIÈRE FRANCO-TUNISIENNE SOCIÉTÉ ANONYME ACTION N° 00,890 Quatorzième Coupon d'Intérêt 14 *Payable le Premier Janvier 1911.*	SOCIÉTÉ FONCIÈRE FRANCO-TUNISIENNE SOCIÉTÉ ANONYME ACTION N° 00,890 Treizième Coupon d'Intérêt 13 *Payable le Premier Janvier 1910.*

France

FRANCO-TUNISIAN MORTGAGE, REAL ESTATE, & COLONIZATION LAND CO., 1897 #2111

The Certificate
This bearer share of 100 francs shows scenes from French colonial Tunisia. Double pillars support a frieze showing a shepherd standing on the left with his flock of sheep, two camels, tents, and hills in the background. On the right is a village street scene with donkeys, oxen, Arabs, palm trees, and a mosque in the background. Another shepherd with his crook stands in front of the right pillars. Charles Crabbe, who owned an engraving and printing company in Paris, did the design.

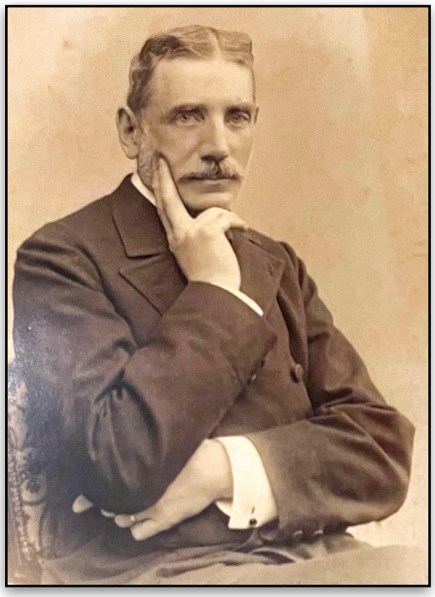
They capitalized the company at 5 million francs. The certificate promised to pay you back your 100 francs in 75 years! That would not impress many today — too much can happen in 75 years!

This certificate, like many French investments in Tunisia, should really be called, "How France appropriated Tunisia and raped her!"

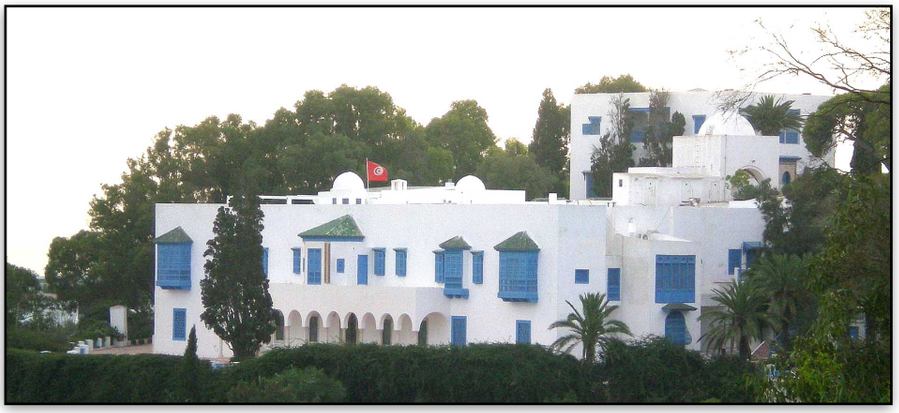
The Torrens Property Registration System
In 1858, Sir Richard Torrens (1814-1884) introduced a new property act for the province of South Australia, derived from Ulrich Hübbe, an Australian lawyer. The system said registers should record all titles with all details that anyone can see. It also provided for compensation if the Registrar of Titles made a mistake, or in case of fraud. Certificate of title was unnecessary as the register contained all necessary information.

Between 1858 and 1875, the Torrens system spread throughout most of Australia and later became popular in other countries. The trust engendered in such a system contributed towards investment and rights. But it could get complicated if people left land to multiple others rather than a single person or entity.

Emile Erlanger, Scammer Extraordinaire
In 1863, Muhammad III, the Bey (ruler) of Tunisia, asked for a loan for building projects. A scammy banker named Emile Erlanger loaned him 30 million francs, but claimed 65 million back 15 years later. The desperate Bey bit the bait. However, he had to double the country's taxes to repay it, which provoked a rebellion.



Rapacious banker Emile Erlanger



Ennejma Ezzahra (Star of Venus), built by Emile's son in Tunisia, now a museum

The Bey had been a great reformer, promoting the first written constitution in the Arab world, separating executive, judiciary and legislative powers. The new constitution also gave equal rights to Muslims, Christians, and Jews, and including the Torrens system of property rights. This opened property ownership for Europeans for the first time.

But Tunisians revolted against tax increases in 1864. This had the unintended effect of pushing the Bey to borrow even more money he could not repay.

In 1865, the salivating Erlanger lent him more money. He promised him 37 million francs, but only delivered 20 million because of "fees," and exacted 75 million in repayment over 15 years!

Muhammad III, Bey of Tunisia 1859-82

Erlanger made similar profits from loans to the Confederate States of America in 1863, (cotton loans), and to Emperor Maximilian of Mexico in 1864-5.

Emile's father, Raphael, was a German-French banker who had converted from Judaism to Christianity for his wife's sake. The King of Portugal made him a baron. His son Emile (1832-1911) inherited that title and lived in France and England. Emile had four sons. The last, a musicologist and painter, built a palace in Tunisia named Ennejma Ezzahra (above).

French Colonization
But Tunisia could not repay Erlanger the loan shark. It was now only a question of time before France would pounce to take over Tunisia. In 1881, she invaded. Her excuse was a border incident with Algeria. France then forced Tunisia's ruler to accept the Treaty of Bardo, which made her a French protectorate.

Two years later, the Convention of La Marca forced control of Tunisia's government, finances, defense, and foreign relations. From 1885 to 1905, France passed laws to expropriate Tunisian land, including waqf (religious lands).

A Belgium-based organization, CADTM, French for Committee for the Abolition of Illegitimate Debt, to this day excoriates Erlanger for his greed.

Though France developed Tunisian industry and public services, they chose areas that benefitted mainly the French. Yet another African country raped by Europeans! Soon, Tunisian nationalism rose. They gained their independence in 1956. But in 2022, GDP per capita was a miserable $3,747 a year.

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CAPITAL
porté à 13.400.000 francs
PAR DÉCISION
de l'assemblée générale extraordinaire du 25 octobre 1899

PARIS-FRANCE

SOCIÉTÉ ANONYME
AU CAPITAL
DE

DIX MILLIONS DE FRANCS

Divisé en 20.000 Actions de 500 francs
Entièrement libérées

SIÈGE SOCIAL A PARIS, 137, Boulevard Voltaire

Statuts déposés chez Me GODET, Notaire à Paris, le 3 Mai 1898.

OBLIGATION

de 500 Fr. 5 %

AU PORTEUR

N° 05.558

Faisant partie de 8.500 Obligations créées en vertu d'une autorisation donnée par l'Assemblée générale du 20 mai 1898.

Ces Obligations sont productives d'un intérêt annuel de 25 fr., payable semestriellement fin février et le 31 août de chaque année, sans déduction des impôts.

L'amortissement de ces 8.500 Obligations se fera au pair dans un délai de 50 années par tirages annuels, à partir de fin août 1899 (avec faculté d'anticipation par la Société).

Le paiement des intérêts et le remboursement des Obligations se feront à Paris, aux caisses désignées par la Société.

Un Administrateur,

Paris, le 25 Mai 1898.

Un Administrateur,

13577 — Imprimerie G. RICHARD, 7, Rue Cadet, 7, Paris.

France

PARIS-FRANCE, SA, 1898 #2313

The Certificate
Paris-France SA was one of the first high-end department stores. It started in 1898 in Paris, spreading later to many provincial cities in France under various names.

Department stores in Paris started in 1784 with the *Magasin de Nouvautés* (the novelty shop). In the 1840s, railroads brought more shoppers to Paris. *Au Bon Marché*, founded in 1838, was the most successful early store; they advertised widely and even offered a reading room for husbands while their wives shopped! Sixty years later, the high end Paris-France store offered clothing and novelties for ladies, luxury goods, Parisian specialties, travel goods, furnishings, food, and more.

Writer Emile Zola set a novel, *Au Bonheur des Dames,* in a department store in the 1880s.

Paris-France SA employed Mucha to produce this design, producing 27 stock and bond certificates from 1898 to 1934, mostly in two tones with black. Mucha signs it with the year 98 on the bottom left at the intersection of the large and small circles.

At only a few hundred dollars, they are probably the cheapest Mucha posters available. As a famous Art Nouveau artist, some use his stock certificates, like the one below, as wall art. This Paris-France certificate is a bearer bond of 500 francs, for a capitalization of 10 million francs. It paid 5% twice a year and was canceled in 1900. Unfortunately, the Parisian printer, G. Richard, printed it using halftone rather than the better looking lithography of the time.

Paris-France closed in the late 1980s, overtaken by four companies: Au Bon Marché, BHV, Galeries Lafayette, and Printemps.

Mucha stock certificate

Alphonse Mucha's Life and Times
To repeat the story of Mucha with the Czech Slavia Insurance Bank, he was born in 1860 in Moravia, in the present day Czech Republic. He earned his living as a singer, which paid for his education at art school. In 1879, he moved to Vienna, doing theatrical designs.

Two years later, Count Belasi of Mikulov hired him to paint murals in his castle, and paid to send Mucha to art school in Munich. The Rothschild family also commissioned him to make decorative panels for their homes.

In 1887, Mucha moved to Paris. Seven years later, he volunteered to do a poster advertising Sarah Bernhardt, advertising her in the melodrama, Gismonda (see right). The six feet high poster appeared all over Paris. It was a sensation. Sarah bought 4,000 copies, and was so taken with his style that she signed a six-year contract with him, commissioning posters, costumes, calendars, and menus.

His sinuous flowery style caught on as Art Nouveau (called *Jugendstil* in Germany). Art Nouveau meant new art, and *Jugendstil* meant youth style.

In the 1890s, large sized posters became very popular after color lithography caught on. Other artists like Eugene Grasset (1841-1917), and Berthon, helped propel the Art Nouveau movement, which later led to the Art Deco Movement.

Mucha married Marie Chytilová in 1906. They lived in New York City 1906-1910, then returned to Europe, and later Prague, where he designed murals, postage stamps, and banknotes. He printed 510 copies of a pictorial book "Le Pater," in 1899 based on the Lord's Prayer.

He also designed "the Slav Epic," a series of 20 large paintings describing the history of Czechoslovakia. Though Catholic, he explored mysticism, and started Freemasonry in Czechoslovakia.

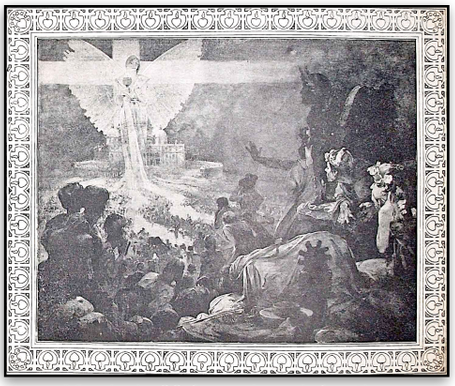
Despite his many years in Paris, Mucha remained a patriot and ardent supporter of the young Czechoslovak Republic for which he also designed banknotes. When the Nazis entered Czechoslovakia in 1939, they arrested him. He died shortly after from pneumonia.

Back to the Certificate
On this certificate, we see five ladies:

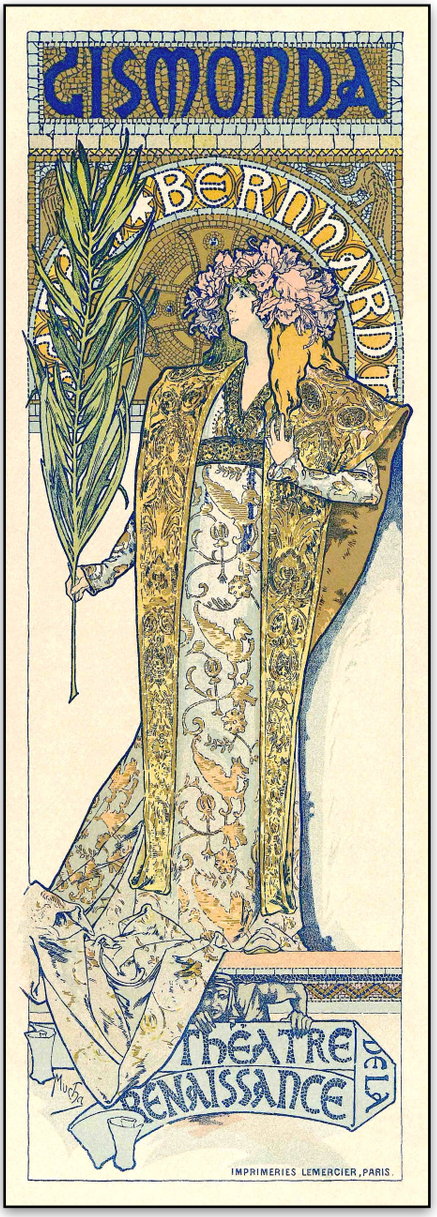
1. One carries a beehive, representing an allegory of industriousness.
2. One holds a hammer and anvil with an adjacent cogwheel for heavy industry.
3. One reads a paper, holding a quill for the writing arts.
4. One holds a caduceus, the attribute of Hermes, the messenger god and god of industry.
5. One is pensive with a moon-shaped halo on her lap, perhaps a personification of thought!

Max Hensley, the editor of Scripophily Magazine, wrote an article abut this security labeled "Mucha do about securities!" He also points out the dark tone of the vignette bringing to mind William Blake's "dark satanic mills," perhaps sympathizing with shop girls.

The artwork stresses women, which Alphonse Mucha always did. But perhaps the group speaks to the main visitors of the department stores who were women.



Mucha's 20 franc bond for the International Religious Exposition 1900



Mucha's famous poster advertising Sarah Bernhardt in *Gismonda* in 1895

The circular format with an indented eccentric circle is interesting from an artistic standpoint. It reminds me of a 78 rpm record, though 78s did not become commonplace until the 1920s.

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https://en.wikipedia.org/wiki/Alphonse_Mucha

SOCIÉTÉ ANONYME DE VENISE A PARIS

VENISE A PARIS

SOCIÉTÉ ANONYME FRANÇAISE

au Capital de 950.000 francs divisé en 9.500 Actions de 100 francs chacune

Constituée conformément aux Lois des 24 Juillet 1867 et 1er Août 1893 — Statuts déposés en l'Etude de Me Ferrand, Notaire à Nogent s/ Marne.

SIÈGE SOCIAL À PARIS

ACTION DE CENT FRANCS AU PORTEUR

ENTIÈREMENT LIBÉRÉE

N° 6.532

Paris, le 20 Mars 1899

Un Administrateur — Un Administrateur

Imprimerie KAHN FILS . 12, Bd St Martin, PARIS

France

VENISE A PARIS SA, 1899

#2183

The Certificate

The Paris Exposition of 1900 was a grand affair. One of the attractions was a re-creation of Venice. *Venise a Paris* (Venice in Paris) issued 500-franc bearer shares, raising around a million francs. They offered gondola trips through trompe-l'oeil recreations of Venice. You passed under cardboard-paste bridges on the Champs de Mars, shown to the left of the Eiffel Tower in the picture bottom right.

The blue lithographed stock made quick repayments: two dividend coupons, one interest coupon of 5%, and three coupons to repay the capital. This certificate had no clipped coupons and was uncanceled.

The 1900 Paris Exposition

They charged too little — only one franc per trip. So investors got nothing. Thus, most certificates show all the uncut coupons, as they never paid any dividends! Frankly, a scam.

The 1900 *Exposition Universelle* (Paris Exposition) was a gargantuan world fair. They held it at *Les Invalides*, the *Champ de Mars*, the *Trocadéro*, and on the banks of the Seine. Over seven months, 50 million people visited the fair, almost twice the 1893 Chicago World's Fair, which attracted 27 million people.

Paris exhibited a Ferris wheel, moving sidewalks, a trolleybus line, escalators, diesel engines, electric cars and fire engines, filming, a new plastic called galalith, and Russian stacking dolls. This was the era of Art Nouveau.

Major buildings were the Grand Palais, the Petit Palais, the Post Alexandre III, the Gare d'Orsay railway station, and Paris Métro Line 1. Forty-one other nations also took part.

Queen Victoria's husband, Albert, organized the first international exposition in London in 1851. France followed four years later to promote French commerce and culture. Back then, these expositions were giant affairs. Anyone who attended one would remember it for a lifetime. France took these seriously and led the world with these giant fairs to promote French technology, science, industry, and culture.

France budgeted 100 million francs to pay for the 1900 fair, 20 million from the state, 20 million from Paris, and the rest from admissions. Admission was one franc (about two hours' working wage for a Parisian), which yielded 50 million francs.

The peak of the golden age of World Fairs was the Columbian Exposition in 1893, except for this 1900 Paris fair. But subsequent technology has eclipsed world fairs — movies, TV, the internet, and modern social media.

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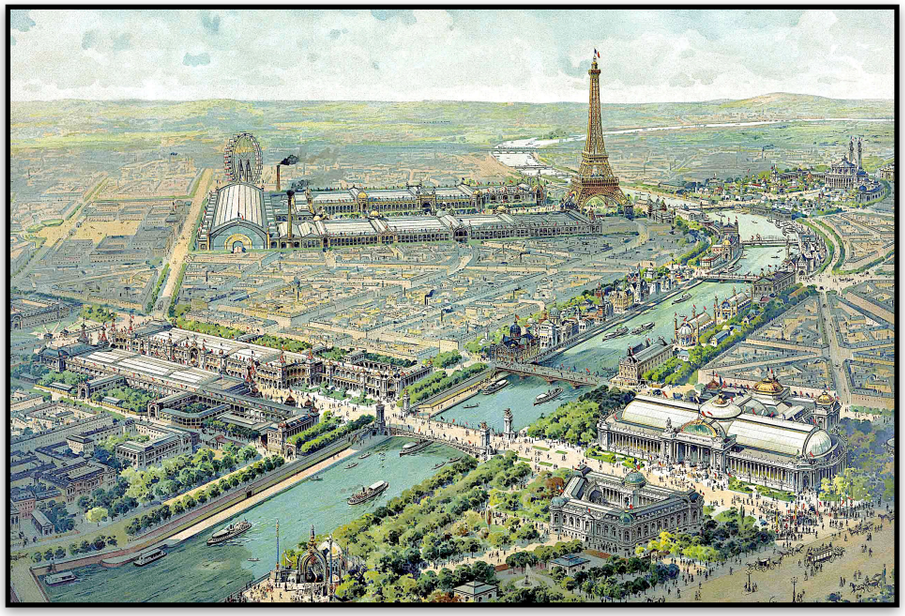
https://en.wikipedia.org/wiki/Exposition_Universelle_(1900)#References

The 1900 Paris Universal Exposition was well executed. Four years before the exhibition, they had these vouchers printed up (shown above). They marketed 3.25 million shares each at 20 francs, totaling 65 million francs. But, total admissions, even excluding these vouchers, only reached 50 million. This is number 1,220 of 3.25 million! But it was a way of selling admissions in advance. Each share gave the right of twenty admissions, each for one franc.

The share depicts Marianne sitting on a pedestal labeled RF (the French Republic) 1900. At her feet is an allegory of mechanics holding a hammer resting on an anvil, and beside her is an allegory of art holding a palette. On the left is the goddess fame with her wings and trumpet, announcing the exposition. Beneath her is a putto holding a shield with EU for Exposition Universelle. Above is an allegory of science standing on a pillar. In the center is a vista of the River Seine and Paris.

The voucher forms a small booklet with six pages inside and the double page forming the picture above. Inside, it says the holder may get 25% off entry into paid entertainments, or 25% off rail or boat transportation. This included a passport like section to stamp if you took a train, as well as reductions on more distant train fares.



1900 Paris Exposition. Venise a Paris was in a line to the left of Eiffel Tower.

L'UNIVERS
PAR LE
CINÉMATOGRAPHE
Capital porté à 1.500.000 francs
15.000 actions de 100 francs
Décision de l'Assemblée
Août 1907
SOCIÉTÉ GÉNÉRALE
DES CINÉMATOGRAPHES
ÉCLIPSE
SOCIÉTÉ ANONYME
Statuts déposés chez Me COCTEAU, à Paris, le 10 Août 1906
SIÈGE SOCIAL A PARIS
Capital Social 600.000 Francs divisé en 6.000 Actions de 100 Francs chacune
Part de Fondateur au Porteur.
UN ADMINISTRATEUR.
N°. 1,914
UN ADMINISTRATEUR.
PARIS, le 16 février 1907
ACTION
ABONNEMENT
2/10 EN SUS
SEINE
L. LECLERC.
IMPRIMERIE CHAIX RUE BERGÈRE, 20, PARIS

L'UNIVERS
PAR LE
CINÉMATOGRAPHE
Capital porté à 1.500.000 francs
15.000 actions de 100 francs
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2/10 EN SUS
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L. LECLERC.
IMPRIMERIE CHAIX RUE BERGÈRE, 20, PARIS

France

SOCIÉTÉ GENERALE DES CINÉMATOGRAPHES ÉCLIPSE, 1907 #2139

The Eclipse Certificate
L. Leclerc designed this film company certificate showing several countries on different continents. Top left is the Tower Bridge of London, and top right is the Nôtre Dame Cathedral in Paris. Center left is an African village, and center right may be the Victoria Falls in Africa. Bottom center is the Sphinx in Egypt, and bottom right is a pagoda in China.

The exception to the countries depicted is an allegorical female leaning on a globe. She holds a mirror in her left hand, reflecting cinematographic influence across the world.

This certificate is for founder bearer shares of 100 francs, for a capitalization of 600,000 francs. The owner clipped the first seven coupons, which brings you to 1914 during the First World War. Two other certificates I have seen had coupons clipped until 1916. Why? Because the company, suffering financially, ceased operations during the First World War. But after the war finished, they resumed production.

The Company
In the US, a nickelodeon boom started in 1905-1906. In 1906, Georges Rogers and Paul Roux became franchisees of the Charles Urban Trading Company, founding Éclipse. Rogers' rubber stamped signature is on the certificate with Roux's actual signature.

In 1908, Éclipse increased their capital to 1.5 million francs to buy out the Urban Trading Company. The franchise used the Kinemacolor films of Charles Urban and Albert Smith.

In 1909, they filmed Wilbur Wright flying in Rome with King Victor Emmanuel III present. The 3 ½ minute movie (see YouTube) shows Wright flying, then shows the first motion picture scenes taken from a plane. Their movies started with this film heading:

ECLIPSE film heading

By 1913, Eclipse was the fourth largest French film maker, releasing 150 films a year. These were shorts for nickelodeon viewing, not full-length feature films.

They had two studios in the Paris suburbs. One of their famous series was the Arizona Bill series, directed by Gaston Roudès and starring Joë Haman.

In France, another important company film company also started in 1906 — the Société Anonime des Phonographes et Cinématographes Lux, headed by the French cinema pioneer Henri Joly. In Denmark, also in 1906, Ole Olsen founded Nordisk Films Kompagni, a future film giant.

Early Cinema
George Albert Smith invented the Kinemacolor process, which used a two-color additive process. They photographed a black and white movie behind alternating red/orange and blue/green filters, then projected them through red and green filters. Smith licensed the process around the world with success from 1909 to 1915. Charles Urban acted as the financial backer. A Wikipedia article shows a movie in action using the process.

Like Éclipse, Kinemacolor declined during the First World War. The financial focus was on war. Popularity with the viewing public faded. They also lost patent rights in 1914 because of a suit of a competing color company, Biocolour. That year, Urban liquidated the company to pay off shareholders.

When did movies start? The precursors to movies were theater, storytelling with images, and shadowgraphy or shadow puppetry. After 1650, magic lantern shows became popular, and in the 1800s, mechanical stroboscopic devices became popular. After photography was invented in 1826, stereo daguerreotype viewers became a popular entertainment in the 1850s. In 1861, Oliver Wendell Holmes, Sr., a physician and polymath, invented the popular stereoscope still seen in antique shops today.

In the 1890s, peep box viewers emerged, allowing the viewing of one-minute movies on celluloid for a nickel, later called nickelodeons. Edison had his assistant, William Dickson, build one called a kinetoscope, introduced in 1893. These became a sensation by 1895. Many Americans first saw them at the Chicago World's Fair in 1893. But Edison's Black Maria studio did not really pursue film making, thinking of it as a novelty rather than art.

Celluloid
In 1846, the Frenchman Louis-Nicholas Ménard invented the first plastic, collodion (cellulose nitrate) in ether. They used it as an alternative to egg white on glass photographic plates. In 1855, Alexander Parkes invented celluloid (nitrocellulose) show-casing it in the 1862 International Exhibition in London as Parkesine to waterproof clothing. This spelled the birth of the plastics industry.

John Hyatt, an American, used nitrocellulose to make billiard balls (made of ivory at the time), and in 1872, he called the material celluloid. It was highly flammable until changed to cellulose acetate, which was a little less flammable.

In 1888, they coated celluloid strips with photosensitive gelatin for photographs instead of using glass. Only a few years later, Edison used it for his kinetoscopes.

They filmed the first movies using a single camera shot in black and white for less than a minute. They were silent. The exact start of art movies (the silent movie era) is undefined. The Parisian Lumière Brothers' ten short films in 1895 is a commonly given start, marked by the first commercial public screening of projected film. Edison's 30-60 second peep boxes are not really movies.

You can still see the Lumière Brothers' first film on YouTube. What strikes me about the ten-minute or shorter projections is that 99% of people outdoors in Paris then wore hats.

Lumière brothers ~1895

Fiction and vaudeville acts followed with live musicians in the theater, including sometimes sound effects. The first Lumière movie includes a steam train coming into a station which includes the pianist making a sound like a train whistle or bell.

The First Long Movies
Upper classes viewed movies as vulgar; they appealed more to working citizens. Early movies were so short that there was little time to develop a plot or story. But in 1897, a 100 minute newsreel of a famous boxing match, the Corbett-Fitzsimmons fight aired.

Newsreels became popular. Pathé News started in 1908. The next year, 35 mm film became standard. Studios, lighting, intertitles (projected lines of script), and new techniques started. For sinister scenes, they used key lighting, in which most of the frame was dark.

Cross-cutting involved the same scene seen from different angles, which D. W. Griffith used a lot. His 1915, three-hour, *Birth of a Nation,* used 12 reels, cost $100,000 to make and took in $50-100 million! Point of view shots were what the actors would see; insert shots were close-up shots rather than faces. Soft focus created expressiveness. Flash-backs, dissolves, and tinting (amber for day, blue for night) added to the artistry.

Charlie Chaplin in the 1920s became a global star, helping America to create 82% of global feature films. The studio system also started in the 1920s, and in 1927, sound — the talkies.

Technicolor started in 1932, using more natural colors. The 1939 movie *Gone With the Wind* remains the biggest grossing movie of all time adjusted for inflation, with 200 million tickets sold for almost $2 billion. Why? Plot, marketing, grandeur, actors, technology, and production cost. They used every one of the seven complex technicolor cameras then available.

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SOCIÉTÉ ANONYME NIÇOISE D'HUILES D'OLIVE

SOCIÉTÉ ANONYME AU CAPITAL DE 1.000.000. DE FRANCS
DIVISÉ EN 2000 ACTIONS DE 500 FRANCS

Constituée suivant les délibérations des Assemblées Générales des 27 Mai et 3 Juin 1911.
Statuts déposés chez Me Larboullet, Notaire à Nice.

Siège Social à NICE, Place de Tende

PART BÉNÉFICIAIRE AU PORTEUR

N° 1480

Nice, le 2 DECEMBRE 1911

Un Administrateur

Un Administrateur
LE PRESIDENT

IMP. LITH. DU COMMERCE NICE 4531

SOCIÉTÉ ANONYME NIÇOISE D'HUILES D'OLIVE PART BÉNÉFICIAIRE 30me Coupon N° 1480	SOCIÉTÉ ANONYME NIÇOISE D'HUILES D'OLIVE PART BÉNÉFICIAIRE 29me Coupon N° 1480	SOCIÉTÉ ANONYME NIÇOISE D'HUILES D'OLIVE PART BÉNÉFICIAIRE 28me Coupon N° 1480	SOCIÉTÉ ANONYME NIÇOISE D'HUILES D'OLIVE PART BÉNÉFICIAIRE 27me Coupon N° 1480	SOCIÉTÉ ANONYME NIÇOISE D'HUILES D'OLIVE PART BÉNÉFICIAIRE 26me Coupon N° 1480
SOCIÉTÉ ANONYME NIÇOISE D'HUILES D'OLIVE PART BÉNÉFICIAIRE 25me Coupon N° 1480	SOCIÉTÉ ANONYME NIÇOISE D'HUILES D'OLIVE PART BÉNÉFICIAIRE 24me Coupon N° 1480	SOCIÉTÉ ANONYME NIÇOISE D'HUILES D'OLIVE PART BÉNÉFICIAIRE 23me Coupon N° 1480	SOCIÉTÉ ANONYME NIÇOISE D'HUILES D'OLIVE PART BÉNÉFICIAIRE 22me Coupon N° 1480	SOCIÉTÉ ANONYME NIÇOISE D'HUILES D'OLIVE PART BÉNÉFICIAIRE 21me Coupon N° 1480
SOCIÉTÉ ANONYME NIÇOISE D'HUILES D'OLIVE PART BÉNÉFICIAIRE 20me Coupon N° 1480	SOCIÉTÉ ANONYME NIÇOISE D'HUILES D'OLIVE PART BÉNÉFICIAIRE 19me Coupon N° 1480	SOCIÉTÉ ANONYME NIÇOISE D'HUILES D'OLIVE PART BÉNÉFICIAIRE 18me Coupon N° 1480	SOCIÉTÉ ANONYME NIÇOISE D'HUILES D'OLIVE PART BÉNÉFICIAIRE 17me Coupon N° 1480	SOCIÉTÉ ANONYME NIÇOISE D'HUILES D'OLIVE PART BÉNÉFICIAIRE 16me Coupon N° 1480
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France
NICE OLIVE OIL, SA 1911 #2793

The Certificate
This attractive certificate came in different colors. This one is blue and represents a bearer's profit share. The same design with a beige-brown background are bearer shares of 500 francs. The company started with a capital of 1 million francs composed of 2,000 bearer shares. Commercial Lithographic Printers of Nice printed the certificate showing an olive branch with black olives. Below right is the rubber stamp signature of the company president, Jules Letainturier.

Ancient Olive Oil Production
Olives, together with grapes (for fruit and wine) and grain (for pasta, bread and couscous) have been the three staples of Mediterranean food since ancient times. Olive oil production started around 6000 BCE, becoming an important trade item. The earliest known olive oil amphora dates to 3500 BCE.

In Athens' founding myth, both Poseidon (god of the sea) and Athena (goddess of warcraft, wisdom, and crafts) competed to be their patron. Poseidon (a symbol of naval power) stuck his trident into the ground, producing a freshwater spring. Athena created the olive tree, denoting prosperity and peace. Athens preferred Athena's olive tree!

On the Athenian tetradrachm below, olive leaves on Athena's helmet and the reverse olive sprig symbolized their huge olive trade. Olives were also one of Athena's attributes. Others were the owl, helmet, spear, snake, and cock. She often wears armor and an aegis (a goatskin on her breastplate or hanging off her left arm).

Athenian silver tetradrachm 454-404 BCE #2943

As well as food, ancients used olive oil for illumination, lubrication, and religious use. In modern times, they also use it for soap and cosmetics.

For ancient Greeks, olive branches symbolized plenty and drove out evil spirits. Greeks used an olive branch to show their status when approaching people of power or in temples. Irene, the Greek goddess of peace, also used an olive branch as one of her attributes. In the book of Genesis in the Old Testament, written around 400 BCE, after the great flood, a dove returned with an olive leaf in its beak, symbolizing hope and renewal. *"And the dove came in to him in the evening, and, lo, in her mouth was an olive leaf pluckt off: so Noah knew that the waters were abated from off the earth".* The olive branch became a symbol of peace and renewal.

Ancient olive oil press from Halicarnassus, Caria, Asia Minor

In 1775, the Continental Congress sent the Olive Branch petition to King George III to prevent war. The king rejected it.

Modern Olive Oil Production
Spain is now the world's largest olive oil producer, making a third of the world's olive oil. Italy, Greece, Tunisia, and Turkey are the other big producers. There are different cultivars of olives, and connoisseurs, like those of wine, coffee and chocolate, love certain types. Olive oil from Nice is called "ripe and fruity." They say it has an aroma of almonds, and secondary flavors of raw artichoke, broom flowers, hay, dried fruits, pastry, ripe apple and lemon! Though connoisseurs may call it Nice olive oil, Nice does the pressing, while the olives come from the countryside in Provence.

First, olives are ground into a paste, which is then pressed to remove water and oil. In ancient times, gravity separated the oil and water, but today the water undergoes centrifugal separation. Leaving the oil and water together too long can speed up rancidification (oil breakdown, making it go "off").

The first pressing produces extra virgin olive oil. Subsequent pressings, centrifugal oil extractions, or solvent extractions are not called extra virgin olive oil. They call the remaining solids pomace, often used for fertilizer or fodder.

Olive Oil 2023 production	Thousands tonnes pa
Spain	766
Italy	289
Turkey	210
Tunisia	200
Greece	195
World	2,407

World olive oil production 2023

Olive oil is mainly oleic acid, which is monounsaturated, and regarded as a healthy oil to consume. Taste depends on the cultivar, the ripeness when picked, and the extraction process.

Nice Olive Oil SA likely enabled multiple local olive growers to send their olives to an olive oil producing facility for processing and marketing.

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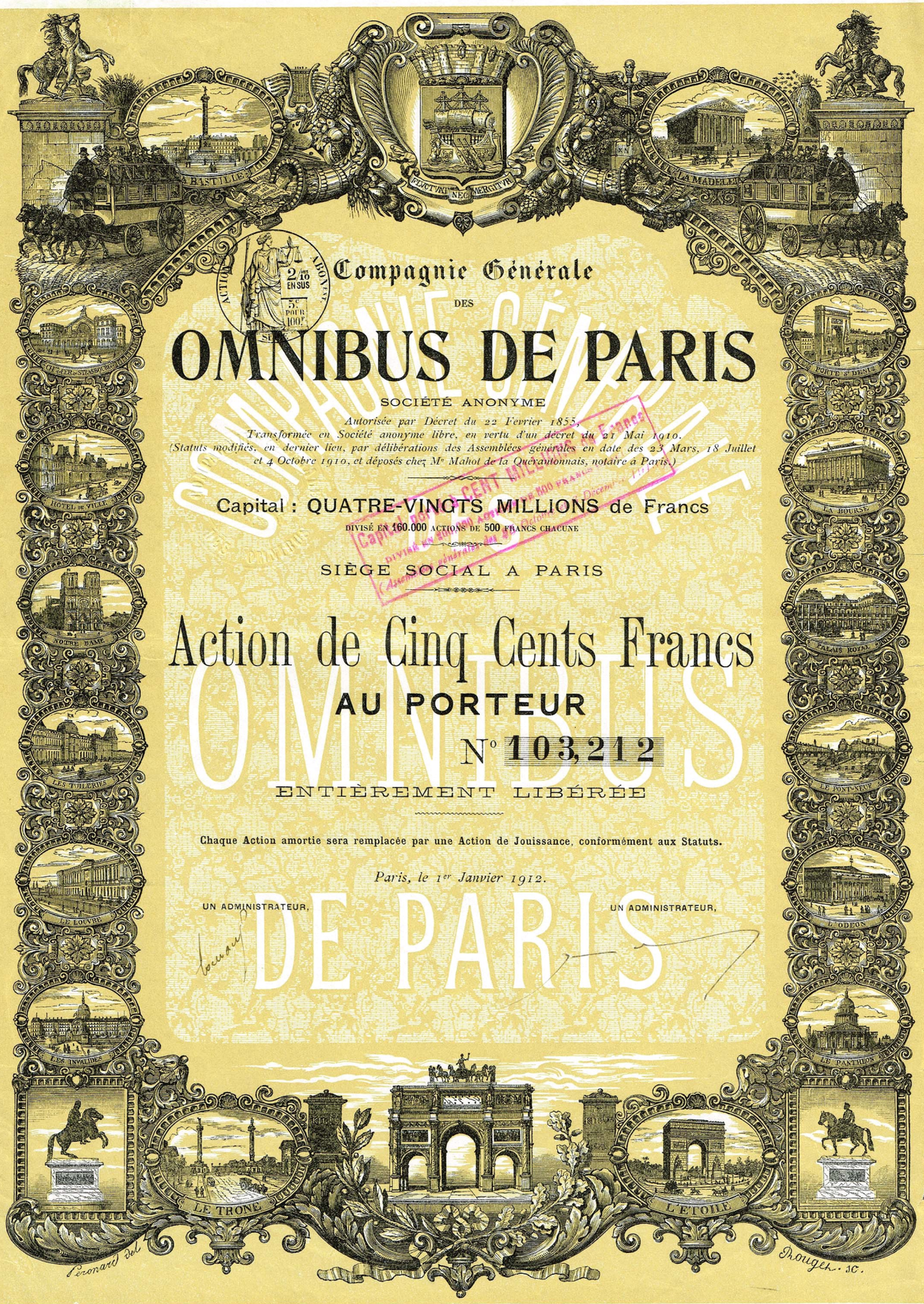


Compagnie Générale

DES

OMNIBUS DE PARIS

SOCIÉTÉ ANONYME

Autorisée par Décret du 22 Fevrier 1855,
Transformée en Société anonyme libre, en vertu d'un décret du 21 Mai 1910.
(Statuts modifiés, en dernier lieu, par délibérations des Assemblées générales en date des 23 Mars, 18 Juillet et 4 Octobre 1910, et déposés chez Me Mahot de la Quérantonnais, notaire à Paris.)

Capital : QUATRE-VINGTS MILLIONS de Francs

DIVISÉ EN 160.000 ACTIONS DE 500 FRANCS CHACUNE

SIÈGE SOCIAL A PARIS

Action de Cinq Cents Francs

AU PORTEUR

N° 103,212

ENTIÈREMENT LIBÉRÉE

Chaque Action amortie sera remplacée par une Action de Jouissance, conformément aux Statuts.

Paris, le 1er Janvier 1912.

UN ADMINISTRATEUR, UN ADMINISTRATEUR,

IMPRIMERIE CHAIX, RUE BERGÈRE, 20, PARIS. — 13663-5-10. — (Encre Lorilleux).

France

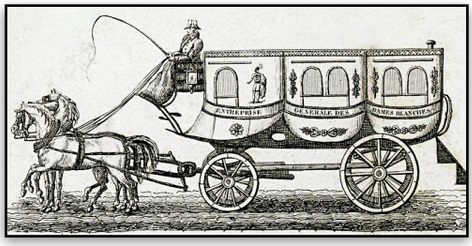
OMNIBUS DE PARIS, 1912 # 1955

Stanislas Baudry's Bath House
In 1823, one Stanislas Baudry built a steam-driven flour mill outside Nantes. He figured, with all the hot water generated, he would start a bath house. But there was a problem: it was too far from the city center, and he had few customers. So he started a shuttle service.

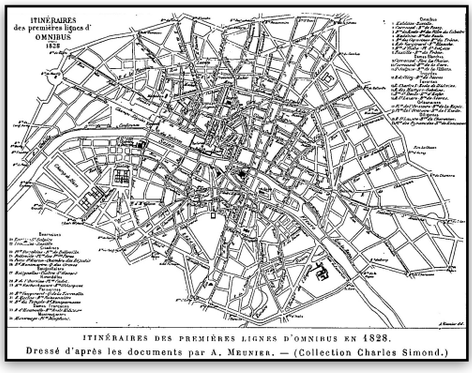
Stanislas Baudry's Omnibus
He built a coach that held 16 passengers (eight on a bench on each side) traveling on a regular schedule. Sure, passengers visited his hot baths, but they also used the service for brief trips en route. Quick to spot a business opportunity, three years later, he opened a city public transport service.

He called his invention the *omnibus*. This did not mean a bus for all; rather it was the Latin plural noun *omnis (*everybody) but with a dative case (for everybody). Today, the word bus is short for omnibus, just the plural Latin suffix meaning "for."

Bingo! Within a few years, he expanded to Bordeaux, Lyon, and later, Paris. In Paris, a single fare was 25 centimes, or double for longer journeys. A conductor collected fares and helped people on and off the omnibus.



Paris omnibus 1828 — the first year



Paris omnibus lines in 1828

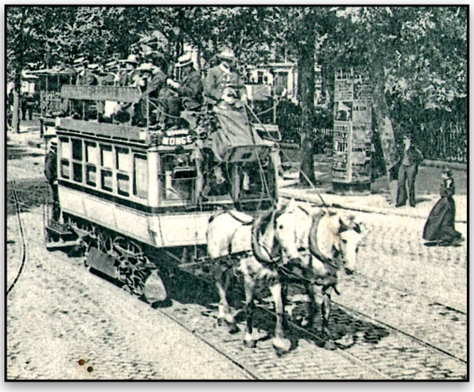
Late 1800s Paris Omnibus (impériale)

Back then, people traveled on stage coaches between cities, but there were no public transports within cities. The wealthy had their own coaches. Middle-class men appreciated the convenience, despite being squeezed in with strangers. Women took a little longer to embrace the rides.

But the competition was cutthroat. Baudry had a difficult time and in 1830 committed suicide. By 1840, 13 companies ran 23 different omnibus lines in Paris, running 7 am to 7 pm.

In 1853, the omnibus sprang a second floor — the roof, reached by a ladder. They called it the *impériale*.

Compagnie Générale des Omnibus des Paris
A merger of several companies in 1854 led to the Compagnie Générale des Omnibus des Paris (CGO). It became the largest omnibus company in Paris. The city of Paris gave them a concession to park their buses anywhere in Paris until 1910. But their 9,000 horses were expensive. They needed feeding, veterinary care, stables (which occupied valuable real estate), stable hands, and drivers.



CGO Horse-drawn tram 1906

Paris introduced trams, i.e., omnibuses on metal rails. A horse can draw 1.7 times more weight on metal rails than on asphalt. It can draw 5 times more on metal rails than on a stone road, 13 times more than on cobblestones, 20 times more than on an earth road, and 40 times more than on sand. A horse can drag on rails, as compared with what he can carry on his back, 54 times the weight.

Last horse drawn impériale Paris 1913

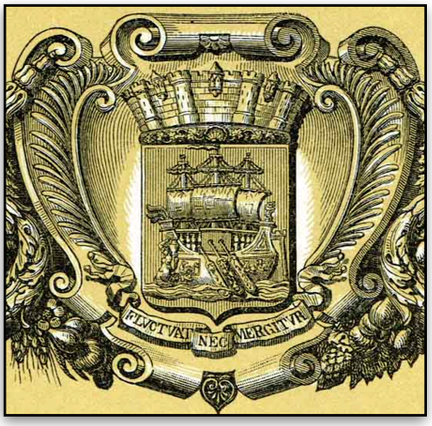
In 1876, Paris tried steam driven trams, but they cost too much to run, were more risky, and were unsuccessful.

In the 1880s, electric trams came of age, displacing horse-drawn trams. The last horse-drawn *impériale* journey took place in 1913.

In 1906, the giant CGO opened the first Parisian petrol engine bus line. The capital they raised was enormous — 80 million francs.

The certificate shows horse-drawn omnibuses. But weren't investors in 1912 looking for electric or diesel trams? Yes! By this time, the horse-drawn era was over, replaced by electricity (battery or overhead trolleybus), petrol, steam, and compressed air.

After the First World War, most public transport companies faced financial challenges. In 1921, Paris integrated the company into the local government.



Paris Coat of Arms

The Certificate
The certificate shows impériales flanking the Paris coat of arms, shown above. The arms show a walled city over a ship with three oars with the motto *Fluctuat nec mergitur* (she is tossed [by the waves] but does not sink). The certificate's left border shows an indented design, to match an engraved stub. The right border has irregular cuts from the owner cutting out coupons. Signatures of the designer and lithographic engraver sit at the bottom of the piece printed by Chaix in Paris.

Going clockwise around the border are engravings of famous locales in Paris:

- *La Madeleine*
- *Porte Saint Denis*
- *La Bourse*
- *Palais Royal*
- *Le Pont-Neuf*
- *L'Odéon*
- *Le Panthéon*
- *L'Étoile*
- *Le Trône*
- *Les Invalides*
- *Le Louvre*
- *Les Tuileries*
- *Nôtre Dame*
- *Hotel de Ville*
- *Chateau Strasbourg*

Parisians knew these landmarks well. They put them on the certificate to appeal to buyers.

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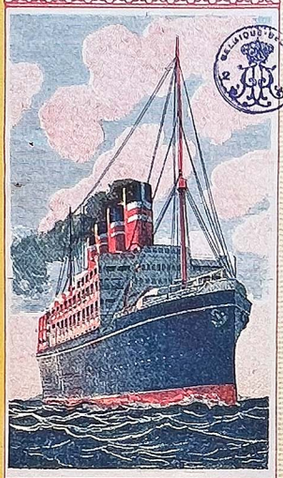
COMPAGNIE DES CLARIDGES HOTELS



COMPAGNIE DES CLARIDGES HÔTELS

Société Anonyme au Capital de 7.500.000 Francs
Divisé en 75.000 Actions de 100 Francs Chacune
Suivant Statuts déposés chez Me FONTANA Notaire à PARIS
et délibérations de l'assemblée Générale déposées à Me LEGAY Notaire à PARIS

TITRES FRANÇAIS 10c POUR 100f ABONNEMENT 75

ACTION DE 100 FRANCS AU PORTEUR

ENTIÈREMENT LIBÉRÉE

N° 065.114

Paris, le 1er Octobre 1921.

UN ADMINISTRATEUR — UN ADMINISTRATEUR

SIÈGE SOCIAL
49 bis Rue Ste Anne PARIS

IMP. G. JENIN, 111 bis Boul. de Ménilmontant – PARIS

28 Compagnie des Claridges Hôtels Action N° 065.114	27 Compagnie des Claridges Hôtels Action N° 065.114	26 Compagnie des Claridges Hôtels Action N° 065.114	25 Compagnie des Claridges Hôtels Action N° 065.114
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France

CLARIDGES HOTEL COMPANY, 1921 #1954

The Certificate
The central panel of this security shows multiple micro-printed yellow lines, an early use of this security device. Each line reads Compagnie des Claridges Hotels, but cannot be seen in the picture opposite. On the top right is the 0.1% French tax stamp (called an abonnement) and on the top left is a Belgian abonnement at a flat rate of two francs.

The certificate represents a bearer share of 100 francs dated 1921. They had a capitalization of 7.5 million francs.

History of Claridge's of London Hotel
Starting in 1812, a London hotel called Mivart's gradually expanded by buying up neighboring terraced houses. Then in 1856, William and Marianne Claridge bought them up, founding the first Claridge's Hotel. From the start, it became the place for high society. Four years later, Empress Eugenie (Napoleon III's wife) stayed there for an extended period where she entertained Queen Victoria.

In 1894, the impresario Richard D'Oyly Carte, owner of the rival Savoy Hotel, bought it, rebuilt it (to include en-suite bathrooms and elevators), re-opening in 1898. Before that, hotel rooms each had a pitcher and basin of water, but shared bathrooms. New York's Waldorf-Astoria was the first in the world to have ensuite bathrooms the year before.

After the First World War, many English aristocrats gave up their London homes and instead used Claridge's while in London. Despite a rather dreary exterior, an interior makeover changed the hotel to Art Deco.

Claridge's dreary exterior, except the Art Deco entry, in Mayfair, London

Blackstone and Colony Capital, two US private-equity funds, later bought out Richard D'Oyly Carte's Savoy group of hotels which had bought Claridge's. A room for the night is £1,000+ and a suite is over £5,000 a night!

History of Claridge Hotel in France
Switch to Paris! In 1911, The Séquanaise Insurance Company (see advertisement right) bought a mansion at 74 Avenue des Champs-Elysées. The company advertised guaranteed funds of over 140 million francs even before the First World War. Séquanaise meant related to the River Seine.

Séquanaise demolished the mansion and had the architects Duhayon and Lefebvre create a palatial hotel. But three years later, during the First World War and barely finished, the army and Red Cross requisitioned it.

Four-star Hotel Claridge in Paris today, unrelated to Claridge's. Courtesy Google Maps

Séquanaise advertising poster from L'Étoile Restaurant, London, courtesy of Wellcome collection

In 1918, after the war, they opened it to the public as Claridge Hotel — nothing to do with Claridge's of London!

The French Claridge company was different from the English Claridge's. Currently called Fraser Suites Le Claridge Champs-Élysées, fire destroyed their interior in the 1970s. After the fire, they converted lower levels into retail space, and upper levels to an "aparthotel" with 110 rooms and suites over six floors. It is now a four-star hotel which opened in 2000.

It sounds as if French entrepreneurs expropriated the name Claridge because of its association with London's high end hotel facilities. Englishmen would have had little chance of a successful suit in France, though they did use the word Claridge rather than Claridge's.

The certificate shows a four-funnel ocean liner, and a fast steam train, suggesting the hotel was for the traveling wealthy.

I have five certificates, four have only five coupons clipped and one has six. They all have a rubber over-stamp that says capital reimbursed January 1925, suggesting owners cut the coupons yearly until then.

Presumably, the hotel refinanced. Who knows how many original shares sold? Though 7.5 million francs sounds like a lot of money in 1919, it would have bought only $1.1 million US, worth perhaps $20-25 million today.

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B. SIRVEN

SOCIÉTÉ ANONYME

Siège Social : Toulouse, Rue de la Colombette, 76

Capital Social : SIX MILLIONS de Francs

Divisé en 6.000 Actions de 1.000 Francs chacune

Statuts déposés pour minute chez Me DASTÉ, Notaire à Toulouse, le 10 Janvier 1921

Action de MILLE Francs au Porteur

N° 01,653

Un Administrateur,

Un Administrateur,

Société Anonyme B. Sirven à Toulouse

France

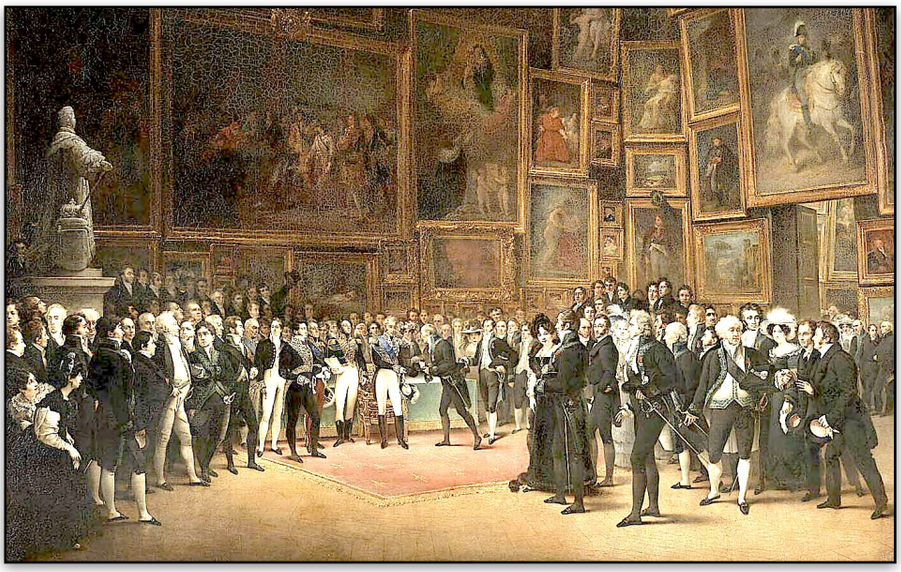
B. SIRVEN SA, 1921 #2148

The Certificate
This 1,000 franc bearer share shows a seated lady instructing youth about a printing press. She holds a printed picture, likely a lithograph. An artistically placed tree and branch complete the symmetry of the picture done in two color lithography.

Note the description below which looks like a hung theater curtain with tassels, and an artist's palate with brushes at nine o'clock.

Plant motifs decorate the border and a BS monogram (lucky the certificate was not American)! The left border is indented.

Luigi Loir the Artist
The painter and illustrator Luigi Loir (1845-1916) signed the lithograph. Born in Austria, where his parents worked for the French royal family in exile, he started studying at the school of Fine Arts in Parma aged eight. He liked landscapes most of all, but also did lithography, ceiling paintings, and commercial illustrations.



King Charles X of France distributing prizes in the annual Salon Art Show in 1824, a painting by François Joseph Heim, now in the Louvre

Luigi Loir, aged 47, by H. Brauer 1892

He moved to Paris and won the gold medal in the Salon in 1889, aged 44. The Salon was the official art exhibition of the *Académie des Beaux-Arts* in Paris. Every six or twelve months, it became the biggest art event in the Western world. The painting top right by Heim shows the King giving out artist's awards in 1824.

On the left is an engraving of Loir aged 47, and below is a painting by Loir entitled, *Before boarding, twilight effect*.

The Sirven Company
Bernard Sirven founded his company in 1834 in Toulouse. He owned a cardboard factory and specialized in lithography, binding, and office and school supplies. He made many advertising posters, especially for Mucha.

Joseph Sirven (1835-1905), Bernard's son, printed war dispatches during the 1870 Franco-German War, giving news of battles to relatives. The company later made the printed metal boxes for hard licorice candies called *Cachou Lajaunie*, still famous in France.

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Painting by Loir entitled, *Before boarding, twilight effect*, 1893. You can almost feel the cold!

ASSOCIATION COMMERCIALE ET INDUSTRIELLE FRANCO ITALIENNE

ASSOCIATION COMMERCIALE ET INDUSTRIELLE
FRANCO ITALIENNE

SOCIÉTÉ ANONYME

AU CAPITAL DE 250.000 FRANCS

DIVISÉ EN 1.000 ACTIONS DE 250 FRANCS CHACUNE

STATUTS DÉPOSÉS AUX MINUTES DE Me FOSSATI NOTAIRE A NICE LE 14 JANVIER 1923

SIÈGE SOCIAL: 45 RUE DE LA BUFFA NICE

ACTION AU PORTEUR DE 250 FRANCS

UN ADMINISTRATEUR

UN ADMINISTRATEUR

N° 000.159

NICE le 192

IMP. MODERNE – BEAULIEU S/MER (A.M.)

AU CAPITAL DE 250.000 FRANCS

DIVISÉ EN 1.000 ACTIONS DE 250 FRANCS CHACUNE

STATUTS DÉPOSÉS AUX MINUTES DE Me FOSSATI NOTAIRE A NICE LE 14 JANVIER 1923

SIÈGE SOCIAL: 45 RUE DE LA BUFFA NICE

ACTION AU PORTEUR DE 250 FRANCS

UN ADMINISTRATEUR

UN ADMINISTRATEUR

N° 000.159

NICE le 192

IMP. MODERNE – BEAULIEU S/MER (A.M.)

France (Italy)
FRANCO-ITALIAN COMPANY, NICE, 1923 #2067

The Certificate
This lithographed certificate in yellow, green and black is a bearer share for 250 francs, for a capitalization of 250,000 francs.

Interpreting this stock certificate is not obvious. On the right, Marianne of France, an allegory of French liberty, wears her liberty cap, and sits next to a hammer and cogwheel, representing mechanics.

On the left is *Italia Turrita,* the allegory of Italy, with her mural crown and caduceus. The caduceus was the staff carried by Hermes, the messenger god, symbolizing speed, and also the patron god of travelers. Turrita sits beside an anvil and an auto engine.

The caduceus is often used to signify medicine after the US Army Medical Corps incorrectly popularized it in 1902. The correct medical symbol should be the rod of Asclepius, with a single snake coiled around the rod.

Between *Italia Turrita* and Marianne, is an early auto with a harbor in the background. What is the car about? The clue is also in the heading. If the commercial and industrial association was a French-Italian company, the title would read *Francaise Italienne*. Actually, it is an early Italian auto manufacturer named Franco, after its owner, Attilio Franco.

Attilio Franco's Company
Franco founded Automobili Franco in 1907 in Milan to produce sports cars. His first "Franco" was a "torpedo sports" car, a 4.9 liter inline four-cylinder auto, exhibited at the Turin motor show in 1908. It developed 50 horsepower and had a maximum speed of 65 mph. Behind the driver and copilot was a fuel drum and trunk, and behind that a double passenger rumble seat (see picture top right).

In 1908, Attilio competed with his second prototype auto in the most famous Italian road race of the time, the *Targa Florio* in Turin.

The annual *Targa Florio* (aristocrat, Vicenzo Florio's shield) race started near Palermo in Sicily in 1905. In 1907, the driver, Tullion Cariolato, drove a "Rapid" by another manufacturer in the race, but got eliminated.

The next year, he drove a 6.8 liter inline four-cylinder Franco, but never reached the finish line.

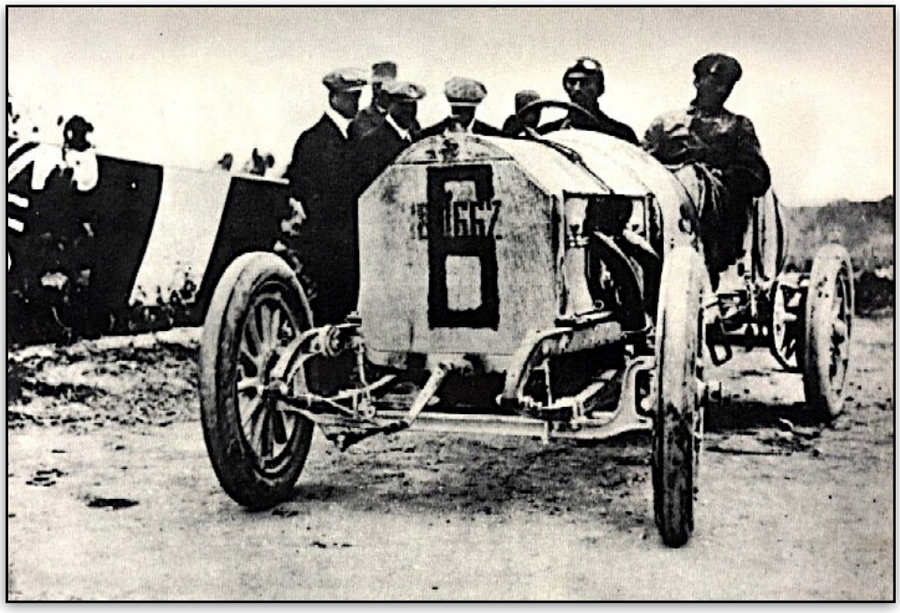
In 1910, Attilio moved from his smaller workshops on the Via Aleardi to Sesto San Giovanni, Milan. There he produced a commercial chain-driven sports car called 35/50 cv (cv is Italian for hp or horsepower).

That year, Cariolato won the Targa Florio driving a Franco 35/50 cv. He completed two laps of the 92.5 mile track in 6 hours, 20 minutes, and 47 seconds, with an average speed of 29 mph.

They considered this race particularly strenuous. Five cars started the race, but only one other car, a Sigma driven by L. De Prosperis, even crossed the finishing line!

But sales of the 35/50 cv were sluggish and in 1912, Attilio stopped production.

Cariolato driving a Franco, uncertain which model and year, either 6.8 liter or 35/50



Uncertain vehicle competing in Targa Florio Race, may not even be a Franco

The Franco badge

Attilio Franco's Village
Attilio had a village named after him. He owned large tracts of industrial land in North Milan. In 1908, he commissioned the architect Egidio Corti, and engineer Michele Gilardi, to build a housing estate for nearby cast iron factory workers. Initially, they called it Villaggio Attilio Franco, then later Villaggio Falck, after the factory owner.

1910 Tullion Cariolato in *Targa Florio* race

After the First World War, Attilio tried to revive his Franco sport cars by raising money in wealthy Nice, France, capitalizing this company with 250,000 francs. This certificate is the result. One presumes he failed.

Subsequently, Attilio worked as an engineer for the Italian State Railway. He designed a steam engine with Dr. Piero Crosti, which used a water pre-heater and went into commercial production.

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UNION IMMOBILIÈRE

SOCIÉTÉ ANONYME

AU CAPITAL
DE
4.000.000 DE FRANCS

Divisé en 40.000 Actions de
100 Francs chacune

VAL PORTÉ à 6.000.000 de Frs
par Décision de l'Assemblée
Générale en date du 30 Décembre 1925

Droit de Timbre acquitté par abonnement. Avis d'autorisation inséré au Journal Officiel du 7 Août 1925

Statuts déposés
en l'Etude de Me BRUNEL, notaire à Paris
le 1er Mars 1925

SIÈGE SOCIAL A PARIS

ACTION DE CENT FRANCS AU PORTEUR

ENTIÈREMENT LIBÉRÉE

N°. 035.597

Un Administrateur *Un Administrateur*

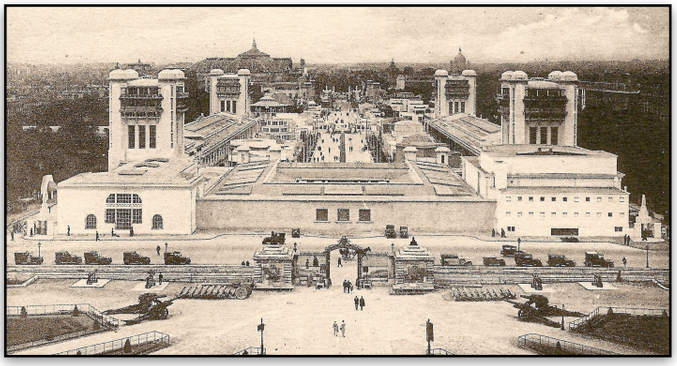
UNION IMMOBILIÈRE SOCIÉTÉ ANONYME

R. C. Seine 218.564 B

Ste. A. TEBOUL, EDIT.

France

UNION IMMOBILIÉRE SA, PARIS, 1925 #2144



1925 International Decorative Arts and Modern Industrial Exposition

New Spirit Pavilion by Le Corbusier

Oasis, an iron and copper grille by Edgar Brandt

Ruhlmann's furniture in the salon of Hôtel du Collectionneur

The Certificate

This is an uncanceled bearer share of 100 francs. The original capitalization was 4 million francs. A stamp shows they later increased it to 6 million francs.

The certificated is indented and shows an attractive design of two mirror-image ladies in front of a portal, each holding a wreath and a branch. Their laurel wreaths suggest a prize winner.

The public offering was likely well subscribed because the certificate number of 35,597 was nearing the initial subscription limit of 4 million francs.

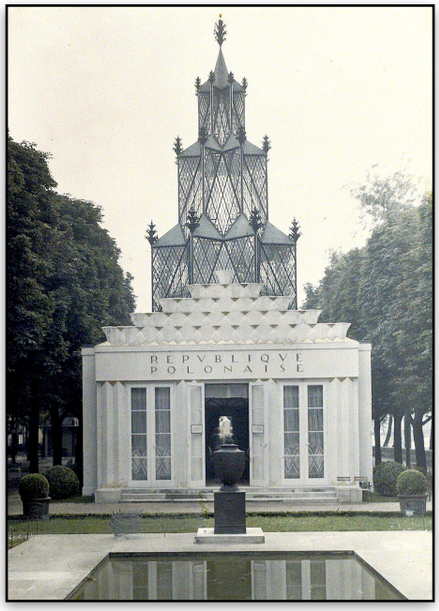
Like so many companies of the era, coupons cease after only a few years, suggesting they with went belly up, though another company may have taken them over. But in that case, there would likely be some stamp or cancellation to show that. The certificate holder clipped only five coupons.

The Company

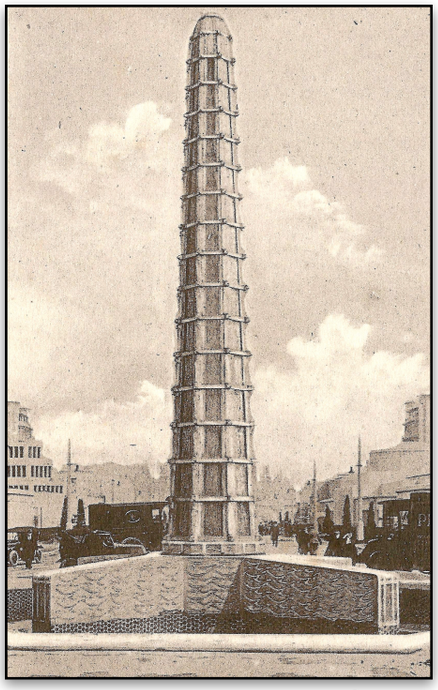
Immobilière means real estate. *Union Immobilière SA* (United Real Estate Company) was a Parisian architectural group active during the *Exposition Internationale des Art Decoratifs et Industriels Modernes* in 1925.

The exposition stressed Art Deco in urban development and architecture. It included buildings designed by Le Corbusier and Robert Mallet-Stevens. After the 1925 exposition, Union Immobilière's members continued to design popular projects.

Twenty different countries had 15,000 exhibitors, and 16 million people visited the exhibition.



Joseph Czajkowski Polish Pavilion



Illuminated crystal fountain by René Lalique

The US did not participate, but the US Commerce Department appointed a commission to attend and report on the exhibition. They admitted they misunderstood the purpose of the exhibition, committing a snafu in not attending!

On another topic, real estate companies often failed in times of war. Housing prices often drop because people want to sell at any price to move abroad, and demand shrivels. During the World War I, 10 million soldiers and 10 million civilians died. During World War II, about 70 to 85 million died. That is a bucket-load of decreased demand.

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PESTI HAZAI ELSŐ TAKARÉKPÉNZTÁR-EGYESÜLET

NYEREMÉNY-KÖTVÉNY

SOROZAT 5582 BEMUTATÓRA 24 SZÁM

SZÁZ **100** KORONÁRÓL

AZ 1892: XVII. T.-CZ. ÁLTAL MEGÁLLAPITOTT PÉNZÉRTÉKBEN.

Ezen nyeremény-kötvény a Pesti Hazai Első Takarékpénztár-Egyesület azon 30 millió korona névértékü nyeremény-kötvény kölcsönének képezi részét, melyet az egyesület az 1889: IX. t.-cz. értelmében az 1897: XXXII. t.-cz. határozmányainak megfelelő biztositék mellett különösen törvényhatóságoknak, városoknak és községeknek adott kölcsönök alapján kibocsátott. A Pesti Hazai Első Takarékpénztár-Egyesület ezen nyeremény-kötvény törlesztési tőkeösszegét, ugyszintén az erre a kötvényre, illetőleg az ehhez a kötvényhez tartozó nyeremény-szelvényre netalán eső nyereményeket a m. kir. pénzügyministerium részéről jóváhagyott és a tullapon feltüntetett sorsolási terv szerint 70 év alatt kifizeti. A sorsolt nyeremény-kötvények beváltása és a nyeremények kifizetése a tullapon részletezett szabályok szerint történik.

Budapest, 1906. április 5.

PESTI HAZAI ELSŐ TAKARÉKPÉNZTÁR-EGYESÜLET

ELLENŐR

FELÜGYELŐ BIZ. TAG.

Az Athenaeum r.-t. könyomdája

Hungary

DOMESTIC FIRST SAVINGS BANK, BUDAPEST, HUNGARY, 1906 #2019

The Certificate
This certificate shows two ladies in front of pillars with friezes above and below and an embossed seal of a bee below. In the beaux arts style, the friezes are very ornate.

The heading translates to First Domestic Thrift Store Association in Pest, often called the Domestic First Savings Bank. The formerly separate cities of Buda and Pest, on either side of the River Danube, unified as Budapest in 1873. Minneapolis-St. Paul is a similar example of two cities on either side of a river in the US that united. The certificate was a bearer share for 100 korona (crowns), giving a capitalization of 70 million korona.

Different Hungarian Currencies
The Hungarians went through several currencies:

- Austro-Hungarian **gulden** (also called florin or forint) 1754-1892.
- **Austro-Hungarian krone/korona** 1892-1918.

The Austro-Hungarian Empire then separated into Austria and Hungary by Treaty of Trianon after First World War

- **Hungarian korona,** 1918-1927, during which there was serious inflation.
- **Hungarian pengo,** 1927-1946, 1 pengo replaced 12,500 korona. Hyperinflation occurred from 1946 to 1947.
- **Hungarian forint,** 1946 replaced the pengo, which had hyperinflated. One forint replaced 400 octillion pengos! An octillion is one billion billion billion — the largest hyperinflation in human history!

The forint is still the Hungarian currency. Since 2003, the government has said they are planning to join the European Currency Union. Somehow, it never happens!

Hungarian History
Hungary became Christian around 1000 CE and became the bulwark against Muslim Ottoman expansion into Europe.

After the Ottomans defeated Hungary in the Battle of Mohács in 1526, the Habsburgs became involved in the Kingdom of what remained of Hungary. Almost 200 years later, in 1718, the Treaty of Passarowitz ceded all former Hungarian territories under Ottoman control to the Habsburgs. In 1867, Habsburg Austria granted Hungary its own monarchy, in what we now call the Austro-Hungarian Empire.

Budapest became a major European city. Much of her wealth came from milling flour, the second largest exporter after the US until the First World War.

Hungarian Banks
In the late 1800s, big Budapest banks had grown spectacularly. By 1913, they had assets of 4.2 billion Austro-Hungarian korona ($847 million US, or $28 billion today). Most leading bankers were Jewish, though many converted to Catholicism or the Reformed Church. By 1914, Hungary had over 5,000 banks and similar institutions, though most were poor and undercapitalized.

This Domestic First Savings bank started in 1839-1840 as the First National Savings Bank of Pest, sometimes translated as the First Domestic Savings Bank of Pest. In the late 1800s and early 1900s, it was one of the big three Hungary banks. The other two were the Hungarian Commercial Bank of Pest and the Hungarian General Credit Bank.

After the First World War, Hungary was on the losing side, but became independent. The new Hungarian korona replaced the Austro-Hungarian korona.

As there was no central bank in Hungary, the government gave the Postal Savings Bank the right to print low value notes, who overstamped old Austro-Hungarian notes.

Easily counterfeited, the overstamps led to widespread counterfeiting, which contributed to a serious inflation. During that period from 1918 to 1926, they had no coins, just notes.

Thus they had:

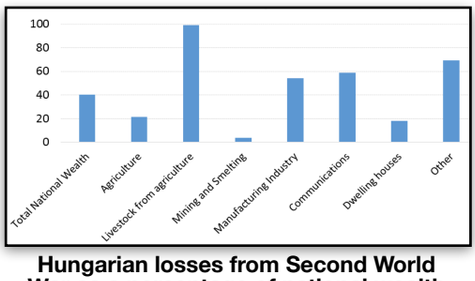
- Austro-Hungarian notes 1919-1922
- Hungarian Postal Savings Bank notes (1919-1923)
- Overstamped Austro-Hungarian notes (1916-1924)
- State notes (Hungarian Ministry of Finance notes) (1920-1928)

Hyperinflation in the 1920s
Hungary started with 1, 2, 25, and 200 korona notes in 1919. Four years later they were printing 1,000,000 korona notes.

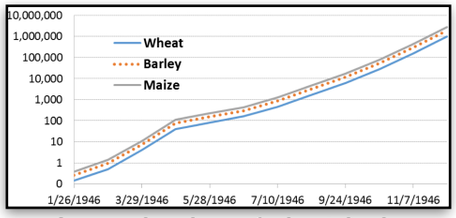
In 1927, Hungary introduced a new currency, the pengo (an onomatopoeic word meaning to ring like a coin). Eighty pengos replaced one million korona. But by 1946, hyperinflation created the 100 quintillion pengo note.

Hungarian 1946 note of 100,000,000,000,000,000,000 (100 quintillion) pengos

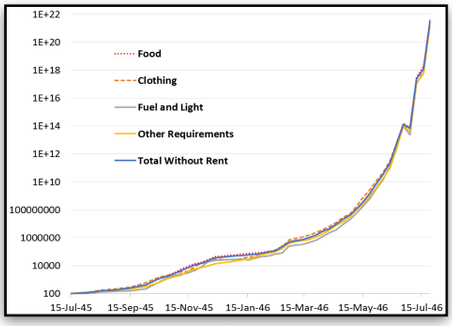
During the Second World War, Hungary sided with Germany and was defeated by the Soviets in 1945. They lost 400,000 people (4% of their population), as well as land, money and gold. War destroyed factories and transport infrastructure, leading to fewer goods and increased demand and prices.



Hungarian losses from Second World War as a percentage of national wealth



Log scale prices of wheat, barley, and maize in milipengos per quintal from Vinitha Kumar (see references)



Log cost of living (1945 =100 Hungary money), showing 10 million-fold inflation over one year, from Vinitha Kumar

After World War II, the Soviets demanded huge reparations. Hungary's government printed too much money to pay for this. The population knew to spend what they had today, as it would be valueless within a few days. At their peak, prices rose 150% a day.

Then in 1946, Eugene Varga, a Marxist economist, printed the new forint currency, renegotiated war reparations with the Soviets, and asked the UN for food supplies. The public regained trust in their government and inflation fell. Between August and December 1946, Hungary had only 6% inflation.

The pengo had depreciated 10^{-27} (an octillion-fold), the worst in history! What caused the hyperinflation? Excessive reparation demands, printing too much money, and a shortage of goods.

Communist then Free Hungary
In 1948, the communist Soviets took over Hungary and nationalized all banks. In 1956, the communist Soviet Union suppressed the Hungarian Revolution.

But the Revolutions of 1989 (also called the Fall of Communism) were a democratic wave that spread throughout the Eastern Bloc countries. The Hungarian OTP Bank (Nationwide Savings Bank) later took over with branches all over Eastern Europe. Total assets in 2023 were $114 billion.

In 1999, Hungary joined NATO, and in 2004 they joined the EU. But they still have not got around to joining the currency union.

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No. 246

Kr. 1000

Aktiebrev
i
AKTIESELSKAPET
Norsk Copra

Da herr Konsul Oscar Larsen

har betalt en aktie i selskapet med

et tusen kroner

skal han eller enhver anden, der ved lovlig transport blir eier av aktiebrevet, være delagtig i rettigheter og underkastet forpligtelser i henhold til selskapets til enhver tid gjældende love.

Selskapets formaal er indkjöp samt leie og drift av kokos-nötplantager og merkantil utnyttelse av sammes produkter. Transport Ligeledes indkjöp og salg av andre tropiske produkter.

Det er registrert i Kristiania, den 24 mai 1917

Kristiania, den 25. mai 1917

I styret for aktieselskapet

Norsk Copra

Joh. Gmeiner Hr. Manning

L. Jacobsen

[illegible]

HALVORSEN & LARSEN LD. LIT. INST. KR.A.

Norway

NORWEGIAN COPRA, 1917 #2066

The Certificate
This certificate is a nominal share, i.e., made out to a specific person, Oscar Ludvig Larsen, for 1,000 Krona in 1917. He was a wholesaler and ship owner. From 1915 to 1925, he acted as vice-consul in Sweden, and in 1919, Norwegians elected him to their parliament for six years.

Some years ago, the Norwegian Collectors Society granted this share the title of the prettiest Norwegian stock certificate ever seen. Printed by Halvorsen and Larsen lithographers, it shows a coconut palm against a beautiful blue sky with a contrasting border and modernistic script.

The Norsk Copra Company
They founded the Norsk Copra company in 1917 in Kristiania. Just eight years later, Kristiania reverted to its original name — Oslo. Oscar did not redeem any of his coupons and the certificate is uncanceled, suggesting the company did not last long.

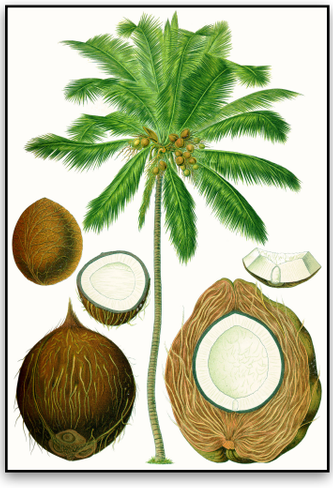
Presumably, the company intended to import copra. Coconuts do not grow in Norway! So they must have intended processing them.

History of Coconut Processing
Halving the coconuts, draining the water, and sun drying them on racks makes copra. After two days, you can remove the copra or meat (the kernel) from the shell, and further dry it for three to seven days. They make mats from the husk shells.

In times past, they ground and boiled the copra in water to extract coconut oil. Today, they press the copra to extract the oil, leaving copra cake or meal, which is fed to cattle and horses.

In the 1860s, Pacific Islanders started using copra for trading with European and Asian sailors in the South Seas. In the early 1900s, a Norwegian community lived on the Solomon Islands in the South Pacific. Presumably, they planned on regular shipments to a processing plant in Oslo, Norway.

Asia also imports copra, as it is an important part of Asian cooking. The Philippines are now the chief producer of copra, others are India, and the South Sea Islands.



Like most plants, coconuts come in different varieties. Vendors and factories use young water coconuts for their fragrant coconut water, which have thick kernels.

Factories use the "milking" coconut for coconut milk, which has a much thicker kernel and has less fragrant water (see left). After removing the husk, they wash the white meat, then blanch it to ease shredding, then strain it to make milk, which is homogenized to prevent fat separation.

Coconut milk uses much more of the coconut meat, creating a higher fat content and more coconut flavor. Before canning or putting in cardboard containers, the liquid is UHT treated (Ultra High Temperature). This sterilizes the liquid for a longer shelf life by heating it to over 135˚ centigrade for only two to five seconds, then quickly cooling it. This preserves flavor while still killing microbes.

They can also chip or flake the meat, then flush it with nitrogen before packing it. Sugar is also often added to coconut flakes. They create desiccated coconut by pressing the meat, extracting the oil, and then air drying it.

100 Gm Coconut meat contains:

4 grams protein
13 grams carbohydrate
34 grams fat (of which 90% is saturated)
9 grams fiber

Companies also sell coconut oil and coconut sugar. While delicious, coconut oil is a saturated fat that may cause heart disease (though some disagree). It is also calorically dense.

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IMPOSTO DO SELLO
50 REIS

Fabrica de Faianças
das
Caldas da Rainha

Sociedade anonyma
Responsabilidade limitada

Capital reis 400:000$000
1ª Serie reis 20:000$000

Titulo de uma acção N.º 1725

Reis 20$000

Pertence a
Manuel Victorino
Pereira da Silva Jor.

Lisboa 30 de junho de 1884

Gerente

Membro do conselho fiscal

LITH-GUEDES. LISBOA

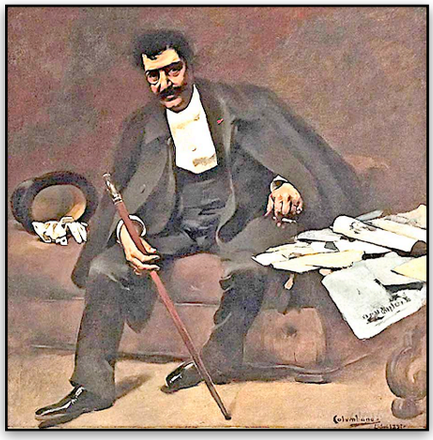
Portugal

FÁBRICA DE FAIANÇAS DAS CALDAS DA RAINHA SA, 1884, LISBON #2185

The Certificate
This is one of the big kahunas of artistic stock certificates. The company spared no expense, hand printing an artistic masterpiece advertising their faience factory. They used 11 different color lithography stones designed by the owner, Raphael Pinheiro. His brother, Feliciano, signed each 18-inch certificate. Only 15 of these certificates are known.

The Caldas da Rainha Faience Factory
Queen Leonor (1434-1467), the daughter of King Edward of Portugal, married the Holy Roman Emperor Frederick III. Her son was the Holy Roman Emperor Maximilian I. She founded the famous Portuguese sulfur spa called *Caldas da Rainha* (Queen's Sources).

In 1884, Raphael Bordalo Pinheiro (1847-1905) founded a faience factory. He named it after the spa — the Caldas da Rainha Faience Factory, which you can still visit. He directed the artwork, while his brother, Feliciano, directed management. Raphael created many famous ceramic pieces for the royal family still on display in a Lisbon museum today, as well as paintings, drawings, and prints.



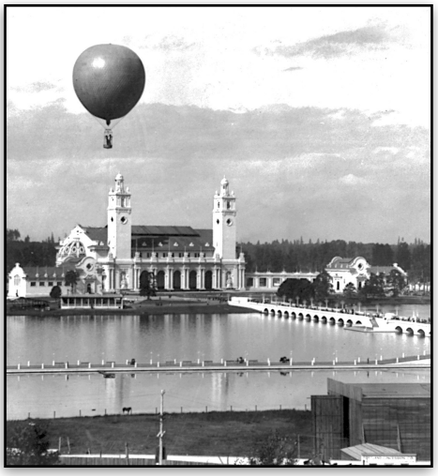
Raphael Bordalo Pinheiro around 1891, Courtesy Bordalo Pinheiro Museum, Lisbon

Raphael designed a landscaped campus handling manufacturing, sales, and classes. They produced two levels of faience, top level with original engravings, and ordinary crockery for the less wealthy. They also made tiles and construction materials.

The factory even produced their own building materials. Electric mixers finished the clay from their clay pits and they installed the latest machinery.

Sales pavilion in Raphael's original campus Courtesy Bordalo Pinheiro Museum, Lisbon

They displayed their artistry at several international exhibitions, including the Lewis and Clark Centennial Exposition in 1905 (see picture below), in Portland, Oregon. Much of the early artwork copied the Art Nouveau movement of 1890-1910.



Lewis and Clark Exposition 1905, Portland

Tile portrait of Pinheiro

Bankruptcy and a New Pinheiro Factory
Unfortunately, in 1907, financial problems led to bankruptcy and the factory's sale at public auction for $7,600. Raphael's son, Manuel Bordalo Pinheiro, continued his father's work founding and directing a new San Rafael Factory, which later became Faianças Artistic Bordalo Pinheiro, SA. Manuel died in 1920.

A group of prominent citizens from Caldas da Rainha continued the original company until 2008, when a conglomerate, Grupo Visabeira, acquired and ran the company. Ten years later, Vista Alegre bought out the Grupo Visabeira for 48.5 million euros.

Trade mark of Bordalo Pinheiro today

There are now two businesses, the original one bought in bankruptcy in 1907, in Caldas da Rainha. The second business is Fabrica de Faianças das Caldas de Rainha in Porto, Portugal. Tourists can see both, as well as two Caldas da Rainha museums, the José Malhoa Museum, and the Ceramics Museum.

Trade mark of Fabrica des Faianças das Caldas da Rainha in Porto today

Modern Bordalo Pinheiro piece, a three-feet high Frog's Ballet Pot

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JARDIM ZOOLOGICO E D'ACCLIMAÇÃO EM PORTUGAL

Jardim Zoologico e d'Acclimação em Portugal

SEDE EM LISBOA

SOCIEDADE ANONYMA DE RESPONSABILIDADE LIMITADA

CAPITAL 300:000$000

EM CINCO SERIES DE R.s 60:000$000

Segunda SERIE

VALOR NOMINAL R$ 20$000

Titulo de uma acção N.º 826

Pertence ao Ex.mo Sr. Portador

Lisboa 18 de Abril de 1904

Os Directores

Eduardo Ernesto de Castilhos

Antonio [illegible]

IMPOSTO DO SELLO 75 REIS

Carvalho gr.

Lith.a da Imp.a N.al

Portugal

ACLIMATIZATION ZOO IN PORTUGAL SA. LISBON 1904 #2043

The Certificate

This popular zoo stock certificate was designed with three blank lines to accommodate multiple owners' names. It could also be converted into a nominal or bearer certificate by stamping the word "Portador" (Bearer) on the appropriate line.

The Lisbon Zoo sought to raise 300 million reis in capital and issued five series of certificates worth 60 million reis each. The first certificates appeared in 1884, and this particular certificate, issued in 1904, sold for 20,000 reis — roughly equivalent to $20 USD at the time. It includes a 75-reis tax stamp at the bottom left, which is integral to the document.

The engraving on the certificate depicts various animals in a specific sequence. Starting at the top with an eagle and snake at 12 o'clock, the design progresses through a zebra, a monkey, an ostrich, another bird, a lioness, a stag with its family, and an elephant with her calf. The sequence concludes with a lion and a bear. These animals are separated by wood planks adorned with ivy and birds.

Embossing stamp showing elephant

Zoos, Acclimatization, and the Scramble for Africa

The certificate is titled "Acclimatization Zoo of Portugal." At the time, many zoos included "acclimatization" in their names, reflecting a belief that tropical animals could adapt to European climates — a theory later proven incorrect.

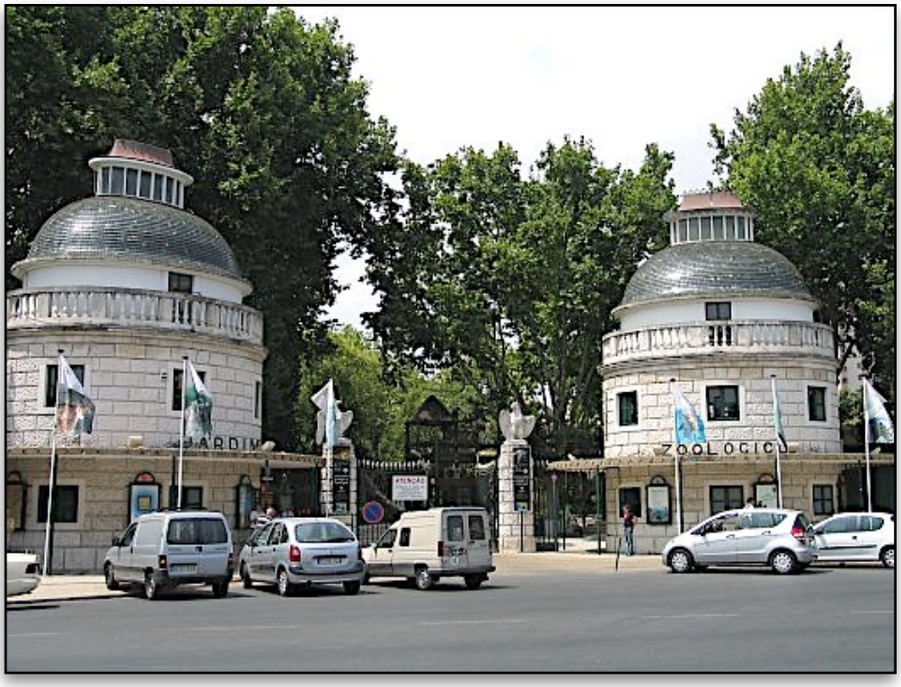
The first public zoo, Tiergarten Schönbrunn in Vienna, began as a private royal menagerie and opened to the public in 1779. During the Scramble for Africa (1833–1914), European interest in public zoos surged, particularly for African megafauna like elephants, giraffes, and lions. This fascination was fueled by scientific curiosity, public entertainment, and national pride. However, the acclimatization movement of the 1850s faded by the early 1900s, as its underlying assumptions were debunked.

The Zoo in Lisbon

The Lisbon Zoo was established in 1884 in the Park of São Sebastião da Pedreira. In 1894, it relocated to Pálháza, where additional attractions like a bandstand and park were added. A tramline connecting to the zoo began operating in 1902, boosting accessibility.

In 1904, the zoo raised more funds and moved to Sete Rios in Lisbon, a larger site. During the transfer of animals, a leopard escaped, prompting the National Guard to shoot it — a dramatic incident that garnered significant publicity.

The zoo expanded its collection, acquiring more African animals from Portugal's colonies and initiating exchanges with international zoos starting in 1911. In 1912, they added new enclosures, including a "monkey village" modeled after the Rome Zoo. This became a popular attraction, nicknamed the "Palace of the Chimpanzees."



Main entrance of Lisbon Zoo

In 1913, the Portuguese government officially declared the zoo a public utility.

The Zoo Today

Currently, the Lisbon Zoo houses approximately 114 mammals, 157 birds, 56 reptiles, and 5 amphibians. Attractions include a dolphin show held three times daily, a children's farm, and a 20-minute cable car ride that offers visitors a unique aerial view of the zoo. The zoo welcomes about 800,000 visitors annually, blending education, conservation, and entertainment.

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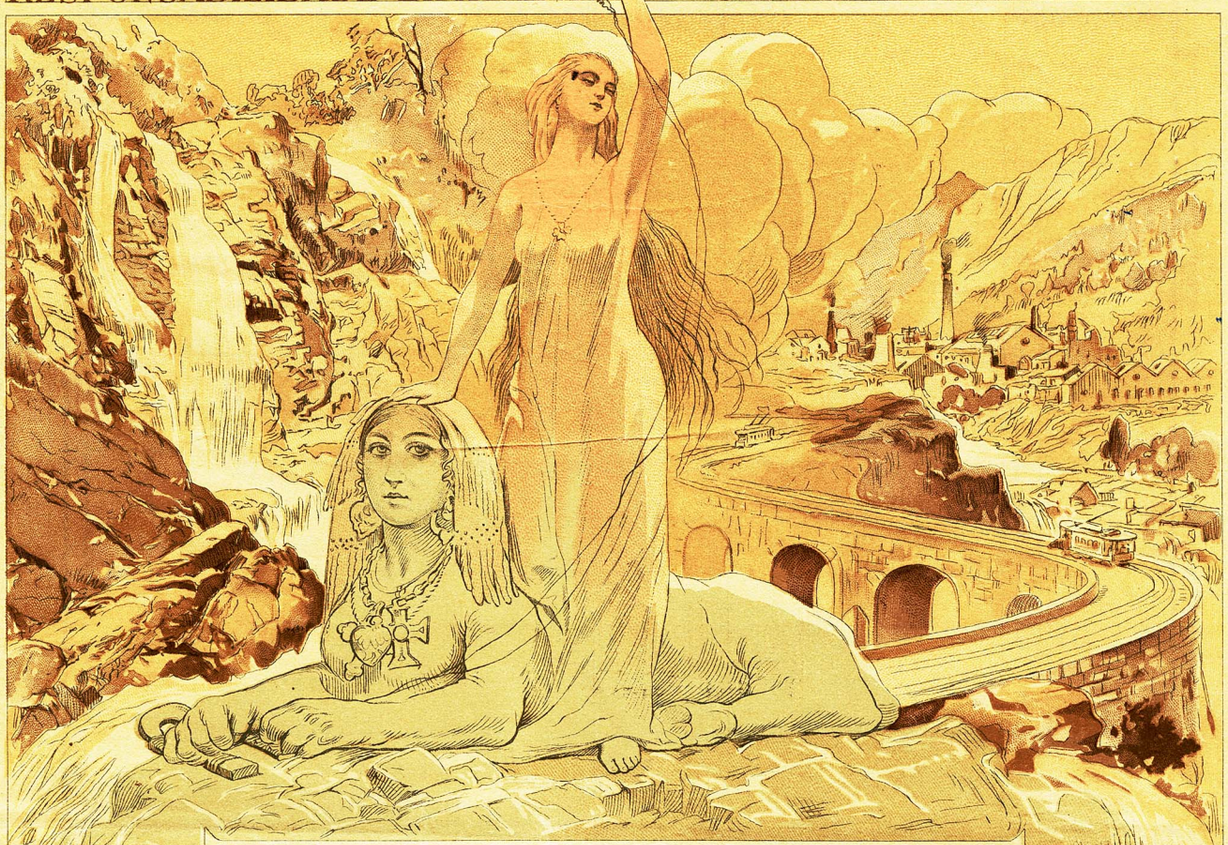
COMPANHIA NACIONAL DE VIAÇÃO E ELECTRICIDADE

SOCIEDADE ANONYMA DE RESPONSABILIDADE LIMITADA

·SEDE·EM·LISBOA·



CAPITAL ESC. 5.000:000$00

Em 200:000 acções liberadas de Esc. 25$00

Constituida por escripturas publicas de 20 de Outubro de 1919 e 12 de Janeiro de 1920, publicadas no Diario do Governo de 23 de Outubro de 1919 e 15 de Janeiro de 1920.

Titulo de quatro acções

Nos 48377 A 48380 Esc. 100$00

Pertence este titulo a o Exmo Snr. Narciso da Costa.

Lisboa 16 de Janeiro de 1920

Os Directores

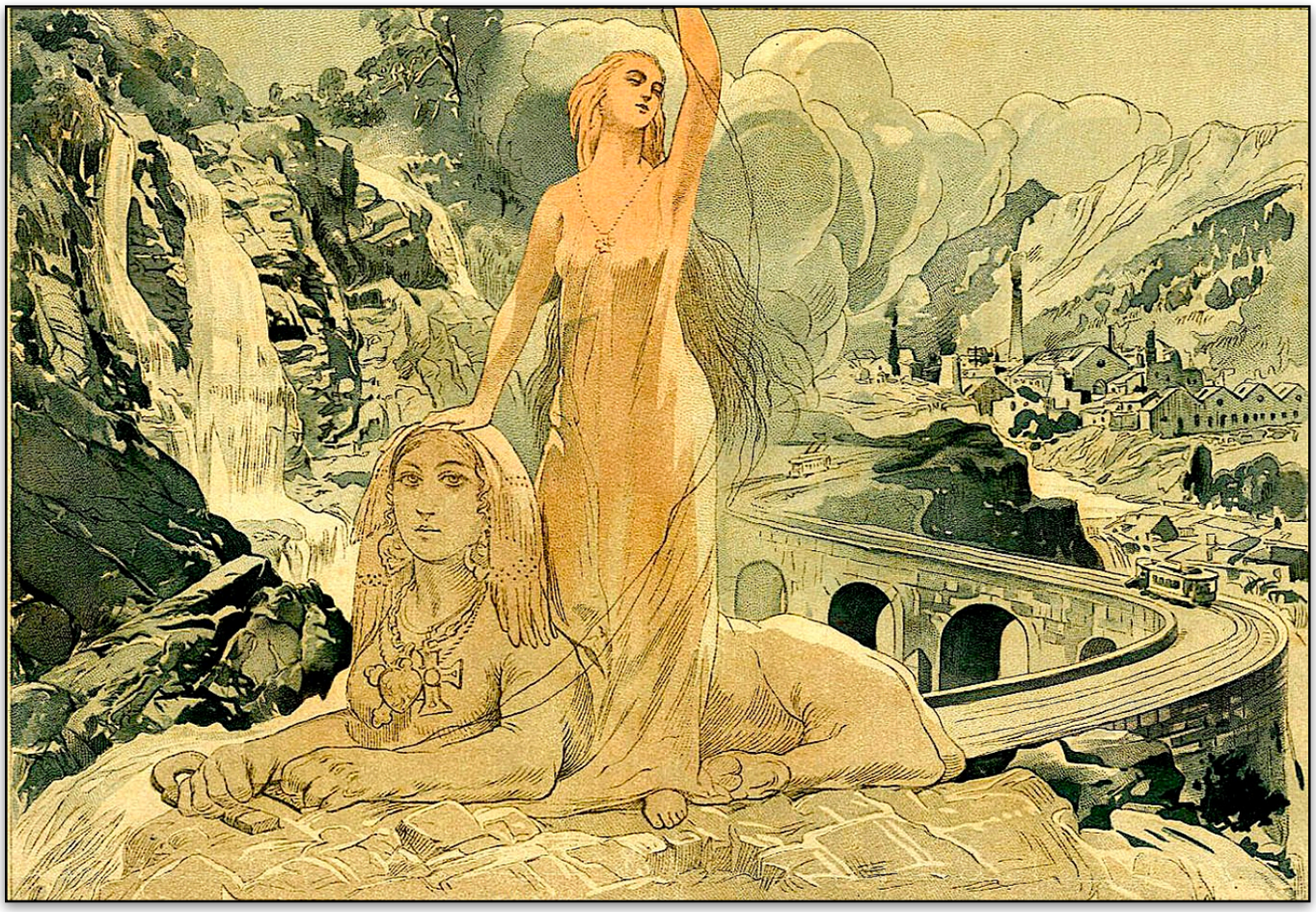
IMPOSTO DE SELO

Litographia de Portugal

Rogrz Gomtiro

Portugal

NATIONAL ROAD AND ELECTRICITY SA 1920, LISBON #2184



The Certificate
Narciso da Costa received this certificate for $100, representing shares in a company that issued 200,000 shares at $25 each, capitalizing the company at $5 million. Subscriptions began in 1919, shortly after the end of the First World War.

The certificate is an Art Nouveau lithograph, featuring a woman holding a lamp next to a Sphinx wearing a cross around its neck. This imagery is significant, as the 1910 Republican Revolution in Portugal had expropriated Catholic Church lands, reflecting the political and cultural changes of the time.

In the background are railways, factories, bridges, mountains, and waterfalls, a curious inclusion since Portugal had minimal reliance on hydroelectric power back then.

Portugal's Utility Industries
Portugal first illuminated public spaces in Lisbon in 1878, but it took decades for indoor electric lighting to reach rural areas. The country's steam and electric power industries lagged behind much of Europe due to a combination of geographic, economic, and industrial factors.

1. Coal Dependency:

- Unlike coal-rich countries like the UK, Germany, France, and Belgium, Portugal had to import coal, making energy production expensive.
- Coastal regions developed some industry, but inland areas remained reliant on wood for fuel, delaying electrification.

2.Comparative Development:

- By 1890, Portuguese GDP per capita was only 44% of the European average, reflecting its slow industrialization. This economic stagnation persisted until after the Second World War.

Historical Context After World War I
A year after the 1918 armistice, the National Road and Electricity Company was formed to improve transportation and electrification in Portugal's interior. However, political and social turmoil hindered progress. Factionalism and favoritism dominated, and development efforts disproportionately favored Lisbon.

- **1926 Military Coup:** A coup led by General Gomes da Costa ushered in a dictatorship. President Bernardino Machado appointed José Mendes Cabeçadas as the new president, marking the beginning of authoritarian rule.
- **Potential Family Connection:** It's unclear if Narciso da Costa was related to General Gomes da Costa, though "da Costa" is a common surname in Portugal.
- **Estado Novo Regime (1933):** António Salazar, a fascist economist, became Prime Minister and established the Estado Novo (New State). Salazar supported Nationalists during the Spanish Civil War and maintained neutrality during World War II while aiding the British.

Transition to Modern Portugal

1. Post-Salazar Era:

- After Salazar's death in 1970, Marcelo Caetano continued his repressive policies, maintaining censorship and political control through police intimidation.

2. 1974 Democratic Coup:

- The Carnation Revolution of 1974 ended the Estado Novo, ushering in a democratic government.
- By 1986, Portugal joined the European Union, sparking economic growth that allowed it to catch up with other European nations.

Today's Perspective
The 1919 certificate is a historical artifact representing Portugal's industrial struggles and the political turbulence of the early twentieth century. It also serves as a reminder of the country's eventual transformation into a modern democratic state, and the importance of energy in stimulating an economy.

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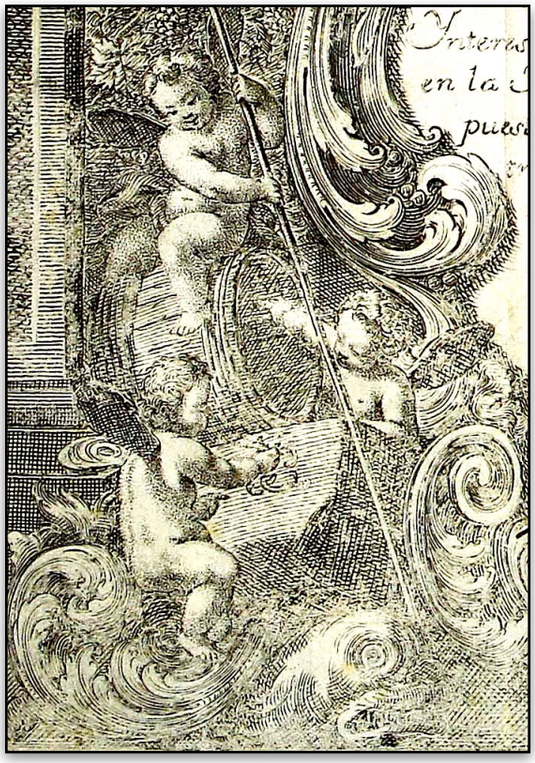
Nº 459.
ACCION DE LA REAL COMPª DE COMERCIO ESTABLECIDA EN BARCELONA
Interesa: Don Phelipe Wits Brigadr. de los Exctos. de S.M. y Sargto. mor. del Regto. de Rs. Guards. Walonas
en la Rl. Compª con esta Accion por doscientos y cinquenta pesos de á ciento y veinte y ocho quartos cada uno, que
puesto en su Inserteria, y en los repartos de utilidades que se hizieren en el modo y tiempos que se acordaren, se en-
tregará al dueño de la Accion, ó á su apoderado, lo que por ella le corresponda. De este instrumento tomará ra-
zon el Contador, le refrendará el Secretario, y sellará con el sello de la Rl. Compañia. Barcelona treinta
de Mayo de mil setecientos cinquenta y seis.
Bernardo Flores Agn. Gibert y Nurrich
Tomó razon
Por acuerdo de los SSres. Directores
Ramon Pico
Juan Vidal y mra. Srio.
Nº 3 Marg.
SS. Nº 2 Pto. Rco.
Ignatius Valls Reg. Acad. Bon. Litter. Incis. Barcne.

Spain

BARCELONA TRADING COMPANY, 1755 #2396



Engraving detail, three putti, one engraving a stone, one carrying a trident

Famous Dealers in Early Scripophily
John Herzog began his career as a broker-dealer in Nasdaq in 1959. In 1967, he became Chairman of Smythe & Co., a numismatic firm specializing in scripophily. In 1985, Herzog partnered with English investment banker Keith Hollender and founded Herzog, Hollender, and Philips, an early scripophily dealership. Herzog later founded the Museum of American Finance in 1987, eventually becoming Chairman of Spink/Smythe USA.

Hollender was also an accomplished author, writing several foundational works on scripophily, including:

- *Scripophily: Collecting Bonds and Stock Certificates* (1982)
- *Scripophily: The Art of Finance* (1994)
- *Financing the World* (2018)

Commenting on early Spanish stock certificates, Hollender noted that they were created under royal patronage, mirroring the trade activities of the Dutch and British East India companies. Spanish trading companies of the 1700s were granted monopolies, often defined by geographic regions or specific commodities, giving them significant advantages over competitors.

Early Spanish Trading Companies
Some notable Spanish trading companies included:

- Companhia de Honduras (1714)
- Companhia de Caracas (1728), later merged with Companhia de Filipinas
- Companhia de Habana (1740), controlling trade with Cuba
- Companhia de Barcelona (1755), monopolizing trade with Santo Domingo, Puerto Rico, and Margarita Island (Venezuela)
- Companhia de Filipinas (1785), the most profitable company trading between Spain and its American colonies until its collapse during the Anglo-Spanish Wars (1796–1802, 1804–1808)

Early Domestic Companies
- Many early internal Spanish companies issued certificates printed on vellum, which today can fetch several thousand dollars at auction. These include:
- Companhia de Zarza la Mayor (1746): A Northern Spain mining company focused on copper and gold
- Real Companhia de Commercio y Fabricas de Zaragoza
- Real Companhia de San Fernando de Sevilla (1747)

The Barcelona Trading Company
Founded in 1755, the Barcelona Trading Company is among the most famous of Spain's 18th-century trading firms. It initially held a monopoly over trade with Santo Domingo, Puerto Rico, and Margarita Island. These regions, however, were sparsely populated and not very lucrative.

To stimulate agriculture, the company began importing slaves from Africa. Only after gaining the right to trade with Buenos Aires in 1771 did the company finally pay dividends. Despite this progress, its insufficient capital prevented further expansion, leading to its absorption by the Royal Company of the Philippines in 1785.

The Certificate
The Barcelona Trading Company's share certificate features an intricate design, including:

- A depiction of the Port of Barcelona and the Virgin of Montserrat, a patron saint of Catalonia (see the picture on the right). She is shown seated before the Montserrat Mountain, a site once home to a Roman temple dedicated to Venus, later replaced by a Benedictine chapel.
- Surrounding the Virgin are a bishop, a nun, and two monks—one holding a ship model and another holding a cross and palm:
- The coat of arms of Barcelona (right) and the coat of arms of Philip V (left), each supported by cherubic putti.

The company's initial capital was 1 million pesos (equivalent to $24 million in bullion value today), divided into 4,000 shares of 250 pesos each. Only 1,785 shares sold, possibly due to the limited trading opportunities.

This certificate, featuring a nearly intact paper seal, is often regarded as one of the most beautiful and elaborate stock certificates of the 1700s.

This engraving detail shows putti sitting on discs labeled No.1 Sto Domingo, No. 2 Pto Rco, and No. 3 Margta, (the islands of Santo Domingo, Puerto Rico and Margarita). The alligator below is emblematic of America.

Madonna and child of Montserrat

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MERCURIO Y ARGOS.—Velazquez.

Banco de Cartagena

COMPAÑÍA ANÓNIMA DE CREDITO FUNDADA EN 1900

CAPITAL: 10.000.000 DE PESETAS

Representado por 20.000 Acciones al Portador, de Quinientas Pesetas, Numeradas del 1 al 20.000, y formando dos series de 10.000 Acciones cada una

ACCION AL PORTADOR

Nº 05517

DE LA PRIMERA SERIE

DE QUINIENTAS PESETAS

Completamente liberada

El Vocal del Consejo de Administración

El Presidente del Consejo de Administración

El Director General

IMP. B. ARNAUD - LYON - PARIS

Spain

CARTAGENA BANK 1900, #2149

Mercury and Argos by Diego Velazquez, It shows Mercury (Hermes) lulling Argos to sleep with his pan pipes to abduct Io the cow

Mythology Behind Velázquez's Depiction
This story is rooted in Greek mythology and not historical fact! According to the myth, Io, daughter of the King of Argos, was a priestess of Hera, queen of the gods. However, Hera's husband, Zeus, desired Io. So, to hide her from Hera, Zeus transformed her into a cow.

Hera, suspicious of her husband, took a liking to the cow and asked for it as a gift. Zeus reluctantly agreed. Hera then set Argos Panoptes, a giant with 100 eyes, to guard Io and keep her away from Zeus. Zeus, determined to reclaim Io, sent Hermes, the messenger god, to distract Argos. Hermes lulled the giant to sleep by playing panpipes. In some versions, Hermes killed Argos, using his eyes to decorate peacock feathers.

When the angry Hera found her beautiful cow gone, she sent a swarm of flies to sting her, causing her to wander across the ancient world. She eventually crossed the Bosporus (which means "ox passage") into Asia and met Prometheus, who gave her the low down on how to become human again and avoid all those darned flies! Eventually, Io reached Egypt, where Zeus made her human so he could have sex with her. She bore him two children and later married an Egyptian king, and lived happily ever after.

Velázquez's Interpretation
Diego Velázquez (1599–1660), a master of the Baroque period and one of Spain's greatest painters, depicted this myth in his painting *Mercury and Argus* (see above). The artwork shows Hermes (Mercury in Roman mythology) guarding the cow Io while Argos sleeps. The Spanish Cartagena Bank used this image on this stock certificate.

***Las Meninas*: A Meta-Painting**
Velázquez is best known for his masterpiece, *Las Meninas* (The Ladies-in-Waiting), a painting housed in Madrid's Prado Museum, like *Mercury and Argus*. *Las Meninas* depicts the court of Spain's King Philip IV, who reigned during Velázquez's lifetime.

Las Meninas (shown right) is celebrated as a visual and intellectual puzzle. The painting portrays multiple characters, including the infanta (princess) and her entourage, in a richly detailed room within the Royal Alcazar of Madrid. A mirror in the background reflects the images of King Philip IV and Queen Mariana, suggesting their presence in the space.

Interpretations vary widely:
- Some believe the mirror reflects the king and queen as they sit for a portrait by Velázquez, whose self-portrait appears in the scene.
- Others suggest the mirror reflects the royal couple as they observe the scene from the viewer's perspective.
- The painting's composition, with its layered spaces and play of light and shadow, explores themes of perspective, reality, and the nature of art.

Velázquez & Order of Santiago
Velázquez included himself in *Las Meninas*, wearing the insignia of the Order of Santiago, a prestigious chivalric order. However, he was not granted this honor until three years after the painting was completed. Some interpret this as Velázquez asserting that artists are intellectuals, not mere craftsmen.

The Cartagena Bank Certificate
The stock certificate featuring Velázquez's *Mercury and Argus* pays homage to the painter's legacy and his depiction of classical myths. The detailed engraving captures the Baroque style's drama and emotional intensity, reflecting Velázquez's mastery of composition and storytelling.

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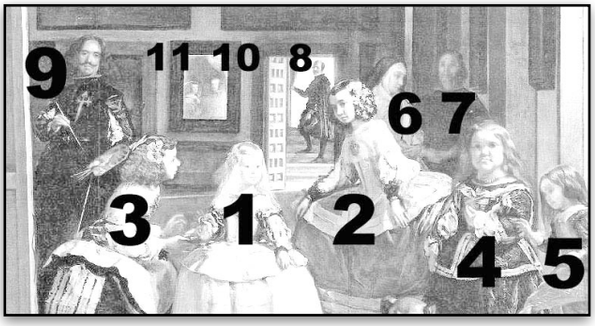
https://en.wikipedia.org/wiki/Diego_Velázquez
https://chatgpt.com/c/670f1e3e-8d00-800c-a228-2a9e1bc72b79

Las Meninas (ladies-in-waiting) by Diego Velazquez, 1656



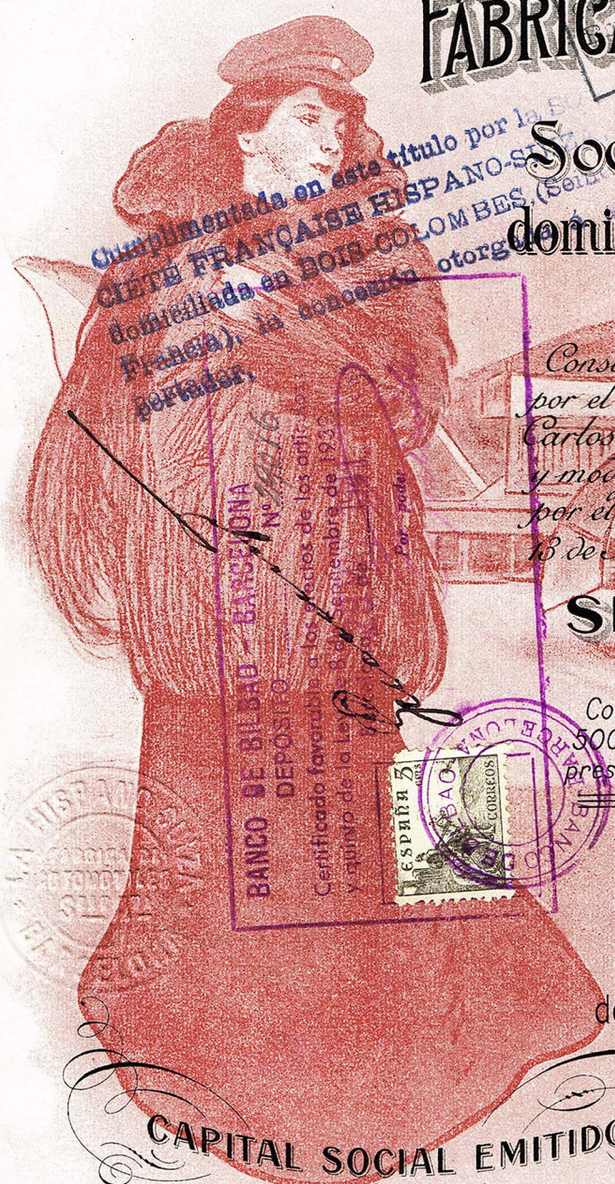
Key to the painting: 1=Infanta (princess) Margaret Theresa, heir to Spanish throne; 2 & 3 Ladies-in-waiting one courtesies, another offers a drink; 4= Achondroplastic dwarf Mari Bárbola; 5= proportionate dwarf, Italian Nicolás Pertusato trying to rouse the mastiff; 6= Doña Marcela de Ulloa, princess's chaperone, talking to a guard (7); 8= José Velazquez, queen's chamberlain, possibly relative of Diego, unsure if he is coming or going; 9=Diego Velazquez before huge easel, wearing Order of Santiago (not granted until 3 years later); 10 & 11= King and Queen, reflection in a mirror.

LA HISPANO SUIZA - FABRICA DE AUTOMOVILES

LA HISPANO SUIZA

FABRICA de AUTOMÓVILES

Sociedad Anónima domiciliada en BARCELONA



Constituida mediante escritura autorizada por el Notario de esta residencia Don Carlos Mª Soldevila a 14 de Junio de 1904 y modificada por escrituras autorizadas por el propio Notario a 16 de Marzo de 1908, 13 de Junio de 1910 y 27 de Diciembre de 1915.

SEXTA EMISIÓN

Comprende 6000 acciones al portador, de 500 ptas. cada una, totalmente liberadas; representadas por 6000 títulos de una sola acción numerados del 5001 al 11000.

Título nº 10972

UNA ACCIÓN AL PORTADOR, de 500 PESETAS, TOTALMENTE LIBERADA

CAPITAL SOCIAL EMITIDO HASTA LA FECHA

5500000 PESETAS

Representado por 11000 acciones al portador, de 500 pesetas cada una, totalmente liberadas.

Barcelona 4 de Enero de 1916.

LA DIRECCIÓN

EL VOCAL — José Vilà Marqués

EL PRESIDENTE — Damián Mateu

EL VOCAL — Eusebio Llanes

EL TIMBRE EN LA MATRIZ

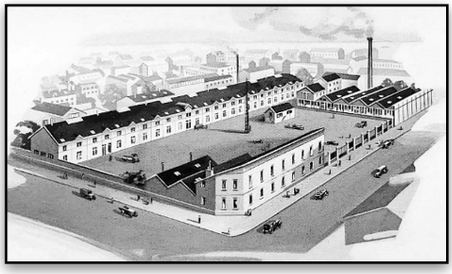
Spain

THE HISPANO SUIZA, AUTOMOBILE MANUFACTURER, SA 1916 #2174

Hispano Suiza, the Company
Most car buffs have heard of Hispano Suiza, a stylish early Spanish car company. They still exist. In 1904, Damià Mateu and Francisco Seix founded the company in Barcelona with their engineer, Marc Birkigt. The next year they produced their first car, a four-cylinder 20 hp engine achieving 54 mph (see below).

Hispano Suiza Alphonso XIII, 1908

They became a prestige manufacturer. In 1908, they named their sports car Alphonso XIII after the Spanish King, who bought one.



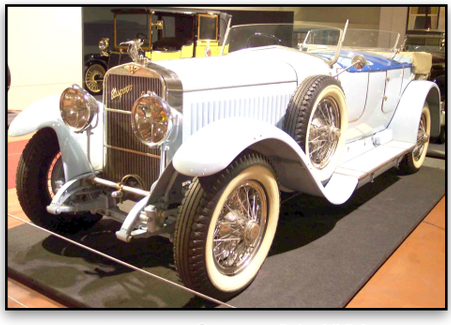
Paris Hispano Suiza factory before 1914

Before the First World War, in 1911, workers went on strike in their Barcelona factory. So, they opened a factory in Levallois-Perret (see above), one of the most expensive suburbs of Paris, where labor and materials were more available. In addition, the luxury market was far greater in Paris than in Spain. They switched to more modest models in Barcelona.

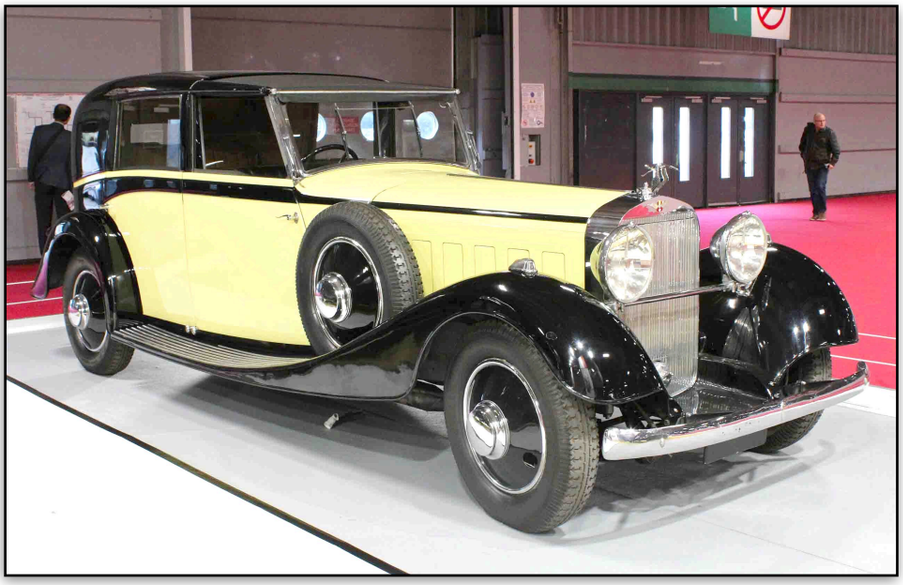
In 1915, they made an aviation engine, producing 50,000 of them for Spain and her allies during the First World War.

In 1916, they started Hispano Suiza Automobile Manufacturers in Guadalajara in central Spain. They used the "Guadalajara" badge on trucks, aviation engines, and arms.

After World War I, they introduced the H6 at the Paris Motor Show, a six-cylinder aluminum, 6.6 liter, overhead cam engine featuring the first power assisted brake.



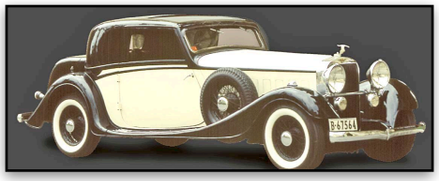
Hispano Suiza H6B, 1924



1931 Hispano Suiza J12, V-12, 9.5 liter luxury car

In 1931, they produced the fabulous J12, a V-12 9.5 liter model shown above

Three years later, they presented the classic K6 at the Paris motor show. It became their last production model, ceasing production in 1937:



In 1938, they presented the H6B Dubonnet Xenia, ugly today, but avant-garde back then. They only made one, and it never went into production:

Engineering excellence led to licenses for other companies like Rolls Royce. Their French subsidiary became semi-autonomous, incorporated as Société Francaise Hipsano Suiza, manufacturing luxury overhead cam cars in the 1920s and 1930s.

They used a stork as a hood ornament (see right) taken from the plane of a First World War French flying ace, Georges Guynemer. A symbol of Alsace, he painted it on the side of his plane.

During the Spanish Civil War (1936-1939), Catalonia's autonomous government controlled Spanish-Hispano Suiza factories, making aircraft engines, cannons, cars, trucks, and machine tools. Meanwhile, France took over their French factories, stopped making cars, and concentrated on aircraft engines.

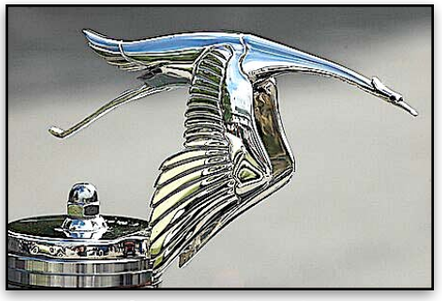
During the Second World War, Spain nationalized their aircraft engine production with headquarters in Madrid.

After the war, French Hispano Suiza continued aircraft engines. The Spanish Hispano Suiza merged with others into SEAT, making mass-produced cars.

Theresa Mariani

The Certificate
Ramon Casas i Carbó designed the certificate, showing an elegant Art Nouveau portrait of the Italian actress, Teresa Mariani (1868-1914). This presaged American advertising of sports cars with an attractive lady nearby. The message was: you can have a girlfriend like this if you buy this car! They sold this stock in 1904, 1908, 1910, and 1916. This was the sixth issue in 1916.

This issue represented 11,000 bearer shares each of 500 pesetas. One peseta was 4.5 grams of silver, the same as other countries who had joined the Latin Monetary Union.



Hipsano Suiza stork hood ornament

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https://en.wikipedia.org/wiki/Ramon_Casas

SERIE
A

NUM
218

SOCIEDAD ANÓNIMA ASTILLEROS DE TARRAGONA.

Domiciliada en Barcelona y constituída por escritura pública de 19 Enero de 1918, ante el notario de dicha ciudad, D. Manuel Borrás de Palau. Capital Social: 10.000.000 de Pesetas. Representado por diez mil acciones nominativas de mil pesetas cada una, divididas en series. Acción Nominativa Transferible de Mil Pesetas a favor de D. Guillermo de Pallejá y Ferrer-Vidal Barcelona 19 de Enero de 1918

El Presidente, Un Director Gerente,

Carbó 1919.

ACCIÓN DE 1.000 PESETAS ENTERAMENTE LIBERADA

La serie A consta de 2.000 acciones y fué emitida al constituirse la Sociedad en el acto del otorgamiento de la escritura de fundación.

EJEMPLAR

Spain

TARRAGONA SHIPYARDS SA, 1918 #2443

The Certificate

Tarragona, a port city in northeastern Spain, lies approximately 60 miles southwest of Barcelona. Believed to have been founded by the Phoenicians around the 400s BCE, the city boasts a rich maritime history. By the 1400s CE, under Moorish influence, Tarragona developed its port infrastructure with a breakwater and dockyards, complemented by a mosque nearby.

Catalonia map showing Sitges and Tarragona

The company Astilleros de Tarragona S.A. (Spanish for "Tarragona Shipyards") operated a major navigation and dockyard business. The port featured a 1.7-kilometer pier, handling about 2 million tons of exports annually, including wine, olives, olive oil, almonds, and hazelnuts. Imports included coal, oil, and fertilizers.

This 1918 stock certificate for 1,000 pesetas was issued to Guillermo de Palleja y Ferrer-Vidal as part of Series A. The goal was to capitalize the company at 10 million pesetas, of which 2 million was represented by this series.

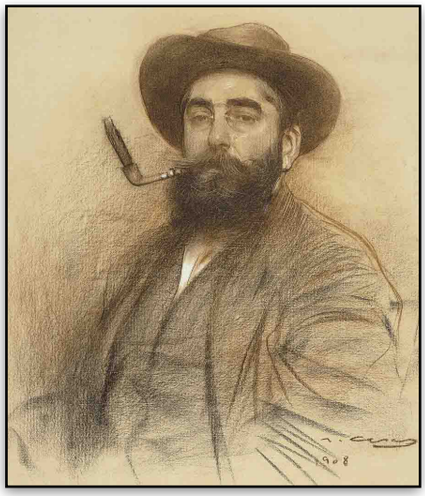
The vignette on the certificate portrays historical ships reminiscent of Spain's trading companies from the 1700s. While the design reflects nostalgia, it does not depict vessels from the 1918 era.

The Artist: Ramón Casas i Carbó

The stock certificate was designed by Ramón Casas i Carbó (1866–1932), a prominent Catalan painter, portraitist, and graphic designer who played a significant role in the modernisme movement. His signature and date appear at the bottom.

Casas gained early recognition at age 17 with a self-portrait as a flamenco dancer (bottom left), earning him an invitation to the Salon of the Society of French Artists, where he exhibited his work. At 20, Casas created his first detailed impressionist painting of a bullfight crowd, marking the beginning of his fame for crowd scenes (see top right).

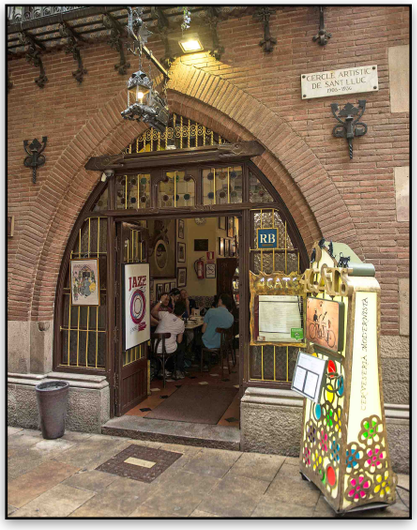
Though he lived with tuberculosis from an early age, Casas maintained a prolific career, exhibiting in cities such as Madrid, Berlin, and at the World's Columbian Exposition in Chicago (1893).



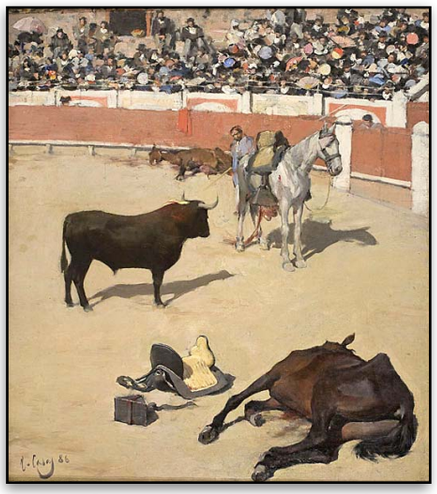
Ramon Casas self portrait 1908

Casas was instrumental in the modernisme movement, collaborating with Santiago Rusiñol i Prats on a book he illustrated. Together, they lived in Montmartre, Paris, a hub for avant-garde art. Back in Barcelona, Casas co-founded Els Quatre Gats (The Four Cats below) in 1897 a bar inspired by Paris's Le Chat Noir (The Black Cat). The venue became a gathering place for modernisme artists and hosted an early one-man show for Pablo Picasso, who briefly explored modernisme in his work.

Ramon Casas as flamenquero, 1883



Els Quatre Gats bar



Ramon Casas, *Bulls* (dead horses) 1886

Friendship with Charles Deering

Casas formed a close friendship with Charles Deering, a wealthy philanthropist, art collector, and inheritor of the Deering Harvester Company (later part of International Harvester). Deering became Casas' patron, traveling with him and commissioning his work.

In 1910, Deering collaborated with architect Miguel Utrillo to build an art center in Sitges, Spain, now the Museum Maricel. Casas' portrait of Deering remains part of the museum's collection.

The Tarragona stock certificate, with its artistic and historical value, reflects both the maritime legacy of Tarragona and the contributions of Ramón Casas to Catalan art. Its connection to modernisme, maritime trade, and the 1700s Spanish stock certificates (see page 64), makes it a significant piece of cultural heritage.

Charles Deering by Casas

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https://en.wikipedia.org/wiki/Charles_Deering

SOCIEDAD ANÓNIMA HIDROELÉCTRICA IBÉRICA = DOMICILIADA EN BILBAO

SOCIEDAD ANÓNIMA "HIDROELÉCTRICA IBÉRICA"

EMISIÓN DE 40.000 OBLIGACIONES AL PORTADOR

~~REDUCCIÓN DE INTERÉS AL CINCO POR CIENTO~~

DENOMINADA DE CUARTA EMISIÓN

DE 500 PESETAS CADA UNA E INTERÉS ANUAL DE 6 POR 100

De conformidad con lo establecido en la correspondiente escritura de emisión y por acuerdo del Consejo de Administración, reunido en sesión de 25 de Mayo de 1928, queda ~~reducido del~~ SEIS al CINCO por ciento anual el interés de esta obligación, a partir del 1.º de Julio de 1928.

El Presidente del Consejo de Administración,

Según escritura de emisión hecha ante el Notario de Bilbao D. Francisco Santiago de Marín, de fecha 3 de Junio de 1921 y escritura adicional otorgada en Boltaña ante el Notario D. Ramón Palmés y Simó de fecha 11 de Junio de 1923

Obligación Talonaria N.º 012193 Valor 500 Ptas.

La Sociedad Anónima "Hidroeléctrica Ibérica" pagará en su domicilio en Bilbao y al portador de este título la cantidad de QUINIENTAS pesetas, previo sorteo anual ajustado al cuadro de amortización inserto al dorso y en el entretanto le satisfará, en el domicilio también de la Sociedad en Bilbao, la cantidad de pesetas quince en los días 30 de Junio y 31 de Diciembre a contar del año mil novecientos veintitrés por intereses a razón de 6 por 100 anual.

La Sociedad se reserva el derecho de amortizar en cada uno de los cincuenta años mencionados en el cuadro, un mayor número de obligaciones que el señalado en él para los años respectivos.

Bilbao 30 de Junio de 1924.

Por el Consejo de Administración:

EL PRESIDENTE, UN CONSEJERO

INSCRIPTA: La hipoteca que garantiza esta emisión en el Registro Mercantil de Bilbao el 24 de Mayo de 1924 en la hoja número 901 quintuplicado, al folio 143 vuelto del tomo 73 del libro de Sociedades inscripción 18.ª y en los siguientes Registros de la Propiedad, figurando a continuación de los mismos el número y fecha de los asientos de presentación correspondientes: Boltaña 719, 5-4-1924; Jaca 396, 22-4-1924; Sos 189, 26-4-1924; Aoiz 624, 28-4-1924; Pamplona 1006, 1.º-5-1924; Tolosa 92, 7-5-1924; Azpeitia 460, 12-5-1924; Vergara 640, 14-5-1924; Durango 11, 15-5-1924 y Bilbao 188, 24-5-1924.

GRIJELMO-S.A.-BILBAO

HIDROELÉCTRICA IBÉRICA S.A. — OBLIGACIÓN			
CUPÓN 100	Nº 012193	PESETAS 15	Pagadero el 30 de Junio de 1973
CUPÓN 95	Nº 012193	PESETAS 15	Pagadero el 31 de Diciembre de 1970
CUPÓN 90	Nº 012193	PESETAS 15	Pagadero el 30 de Junio de 1968
CUPÓN 85	Nº 012193	PESETAS 15	Pagadero el 31 de Diciembre de 1965
CUPÓN 99	Nº 012193	PESETAS 15	Pagadero el 31 de Diciembre de 1972
CUPÓN 94	Nº 012193	PESETAS 15	Pagadero el 30 de Junio de 1970
CUPÓN 89	Nº 012193	PESETAS 15	Pagadero el 31 de Diciembre de 1967
CUPÓN 84	Nº 012193	PESETAS 15	Pagadero el 30 de Junio de 1965

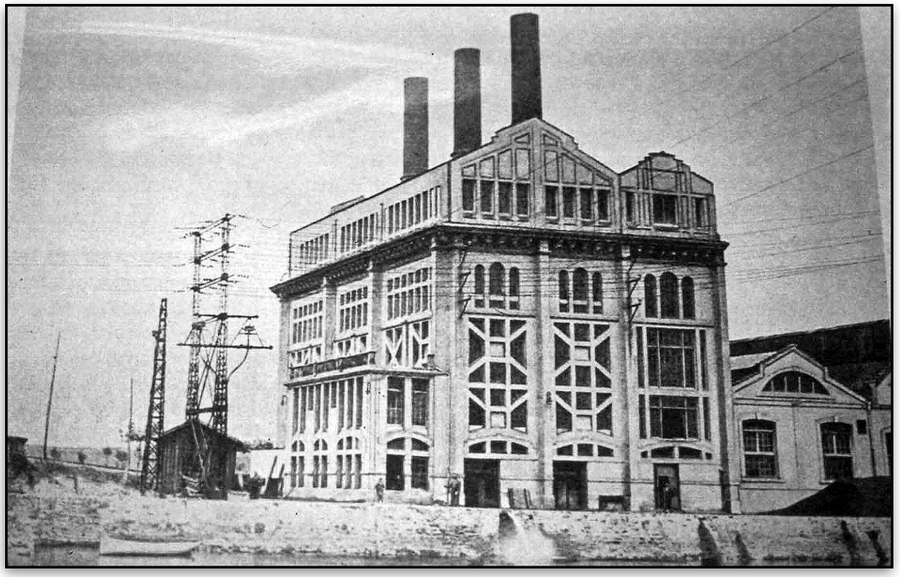
Reducido el interés al 5 por 100 — 12,50

Spain

IBERIAN HYDRO-ELECTRIC SA, BILBAO, 1924 #2150

Location of Burceña, Bilbao, Aldeadávila Dam, and Ebro River in Northern Spain

Above: Aldeadàvida Dam, below: Burceña, 1st big N. Spain thermal power plant 1907-85



Formation of Hidroeléctrica Ibérica

In 1901, Hidroeléctrica Ibérica was founded in Burceña, near Bilbao, in northern Spain. The company focused on hydroelectric power, using dams and waterfalls along the Ebro River basin. It later expanded to include a coal-powered generating station in 1907.

One of the driving forces behind the company was José Orueta y Nenín, an influential entrepreneur with ties to Spain's King Alfonso XIII. Financial backing came from the Bank of Vizcaya, led by bankers Lucas and Juan de Urrutia, who invested heavily. By 1907, they capitalized at 12 million pesetas, with the bank holding a 56% stake.

The Certificate Design

In 1924, the company issued 40,000 bearer shares valued at 500 pesetas each, resulting in a total capitalization of 20 million pesetas.

The certificate is rich with symbolism:

- A floating lady personifies electricity, holding two carbon rods with trailing wires that form a carbon arc, illuminating the sky.
- A putto (cherubic figure) holds an electric light bulb near cascading waterfalls, representing hydroelectric power.
- The background features mountains and rivers flowing into the falls, ultimately reaching the sea.
- The frame incorporates repeating zigzag electric motifs interwoven with electric light bulbs, emphasizing the theme of electricity.

C.S. Jaquin designed the lithograph, whose signature appears at the base of the waterfall. It was printed by Grijelmo S.A. in Bilbao. The certificate functioned as a bond, paying a 6% annual dividend (15 pesetas every six months).

Hidroeléctrica Ibérica's evolution & legacy

The Spanish Civil War (1936–1939) caused significant destruction to the company's facilities. However, in 1944, under Francisco Franco's regime, Hidroeléctrica Ibérica merged with Saltos del Duero, forming a new entity called Iberduero.

Saltos del Duero had established hydroelectric plants along the Douro River, which borders Spain and Portugal. One notable facility was the Aldeadávila Dam, a major contributor to the company's power generation.

By 1951, Iberduero expanded its capital base to 1.555 billion pesetas, issuing more stock. By 1969, its capital increased to 23 billion pesetas (around $10 billion today), reflecting the growing demand for electricity.

By 1970, Iberduero produced 27% of Spain's electricity. In 1991, it merged with Hidroeléctrica Española to create Iberdrola, which today produces 40% of Spain's electricity, much of it from renewable energy.

This beautifully designed stock certificate not only represents the historical journey of Spain's electricity sector but also serves as an artistic celebration of the technological progress that shaped modern energy systems.

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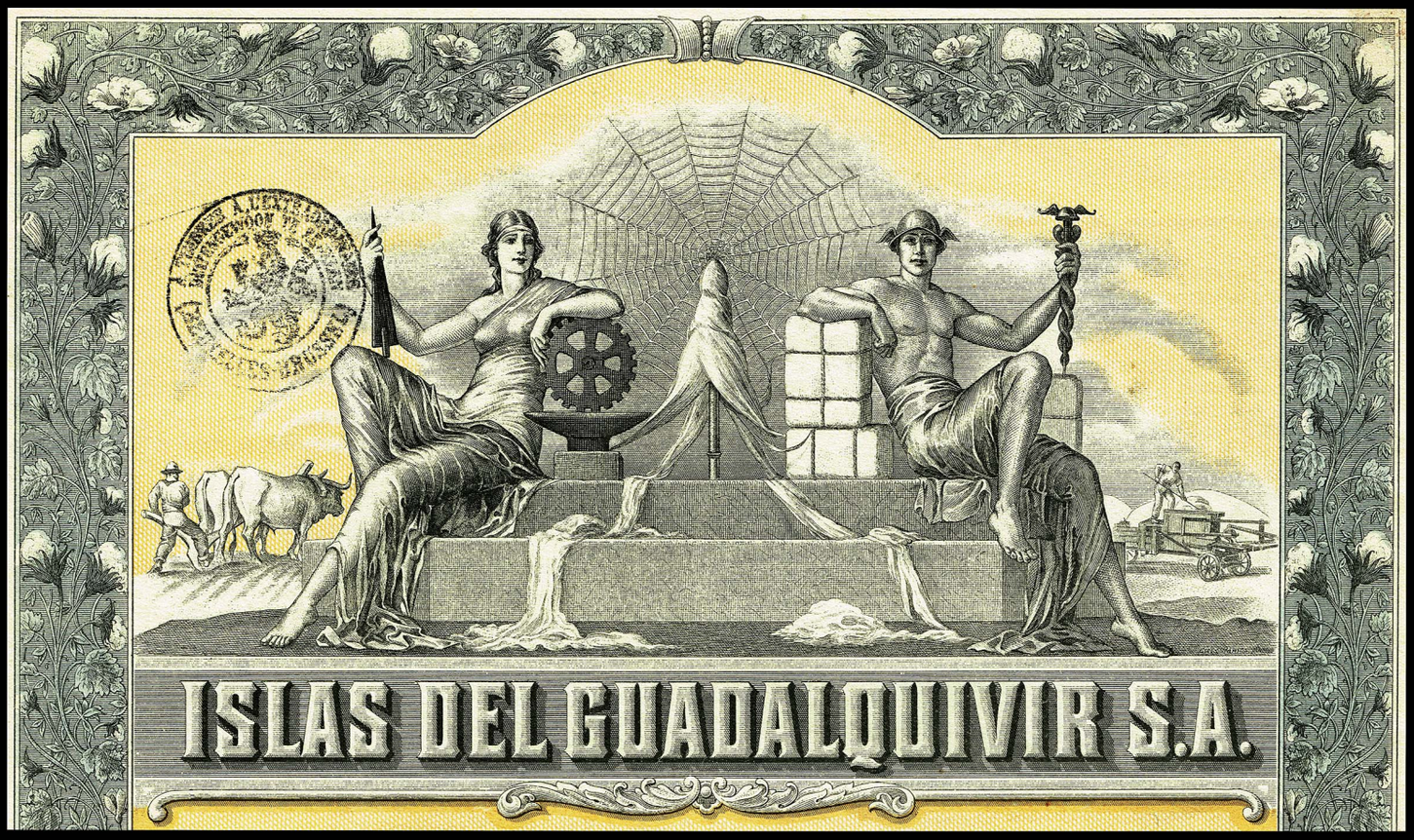


ISLAS DEL GUADALQUIVIR S.A.

ISLAS DEL GUADALQUIVIR S.A.

Constituida mediante escritura otorgada en Sevilla el 25 de Octubre de 1926 ante el Notario de Sevilla Don Félix Sanchez Blanco y Sanchez

CAPITAL 20.000.000 DE PTAS.

CÉDULA DE FUNDADOR

EXENTO DEL TIMBRE DE EMISION POR R. O. DE 28 DE JUNIO DE 1927

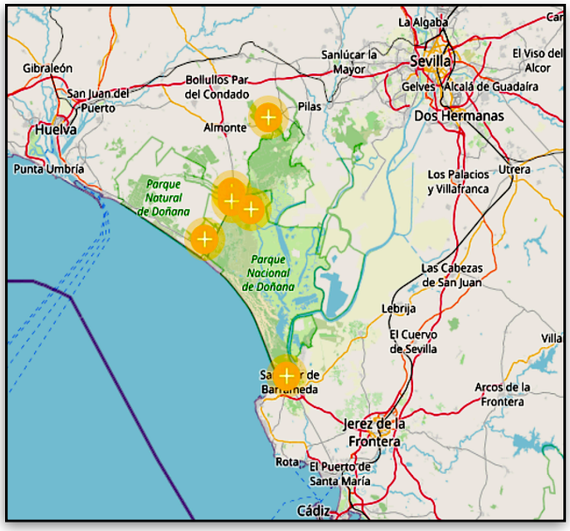
Nº 136704

Sevilla 25 de Octubre de 1926.

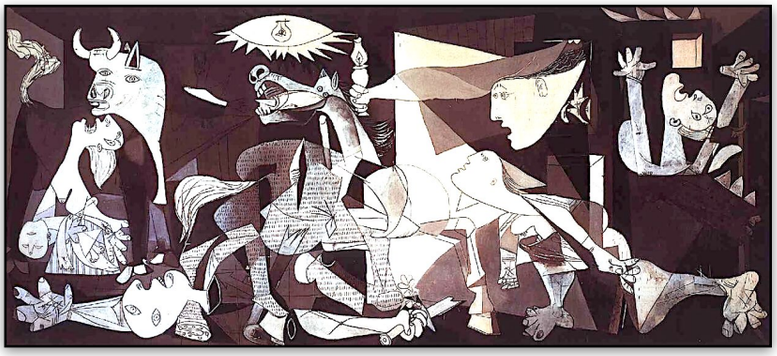
EL ADMINISTRADOR

POR DELEGACION DEL CONSEJO DE ADMON.

Spain
ISLANDS OF GUADALQUIVIR SA, SEVILLE, 1926 #2143



Details of Guadalquivir marshes & Doñana National Park



Picasso's *Guernica*, measuring 11 by 25 feet

The Guadalquivir Marshes — a history
The Guadalquivir Marshes, or Las Marismas, span the lower sedimentary basin of the Guadalquivir River in southern Spain, covering around 460 square miles (300,000 acres). This vast depression is fed by the Guadalquivir and Guadiamar rivers.

About 200 square miles of the marshes now form the Doñana National Park, a UNESCO World Heritage Site known for its rich biodiversity, including species like the Iberian lynx, Spanish imperial eagle, flamingos, and over 300 types of birds. The area encompasses a mix of brackish marshes, rice paddies, dunes, fields, and woods, resembling the Camargue region in southern France.

Guadalquivir marshes purple heron and Iberian lynx

Historically, this delta region was a lagoon system called Lacus Ligustinas during Roman times. Back then, the Guadalquivir River was navigable to Cordoba, but is now only navigable to Seville.

Sediments gradually transformed it into a fertile landscape of islands, such as Captor and Captiel. Over time, the lagoon filled with silt, creating rich farmland. By the ninth century, the Arabs bred horses there. In 1253, King Alfonso X donated Captor Island to Seville, where crops like wheat, barley, rice, and melons thrived.

In the nineteenth century, marsh drainage projects began to improve farming, with significant engineering efforts to straighten the Guadalquivir River and enhance navigation.

Isles of Guadalquivir Company
In 1926, the Islas del Guadalquivir S. A. company was founded with funding from England and Switzerland. Known as "Islas de los Ingleses," the company capitalized at 20 million pesetas, later doubling to 40 million pesetas.

The company transformed the marshes by drying and sanitizing them, creating several villages, including Dora, Alfonso XIII, and Veta de la Palma. Infrastructure developments included:

- 42 miles of roads
- 34 miles of narrow-gauge railway
- 62 miles of telephone lines
- 17 miles of high-voltage power lines
- Canals, pumping stations, and drainage systems.

Despite its ambitious plans, the company struggled financially. In 1930, it was absorbed by Compañía de Valoración de Marismas, S. A., which renamed the central village Villa Guadiamar. However, strikes and disputes with settlers led to water supply cutoffs, causing disease and famine.

In 1934, another company, Isla Mayor del Guadalquivir S. A. (ISMAGSA, seen below right), took over the deteriorated infrastructure. The Spanish Civil War (1936–1939) further disrupted productivity.

Development after the Spanish Civil War
The Civil War started in 1936 between the Nationalists under Franco, and the traditionalist Republicans under the politician Francisco Caballero then Negrin. Mussolini and Hitler supported Franco, who asked them to bomb Guernica. In the Basque country of Northern Spain, it had no strategic military value and was the first aerial saturation bombing of civilians. Many regard Picasso's huge anti-war painting, Guernica (at top), as his most famous.

During the Spanish Civil War, Franco's forces repurposed parts of the marshes for rice cultivation.

A year after his 1939 victory, Franco's government declared the marshes of national interest. Subsequent companies continued developing the area as farmland. New towns were established, initially named Franco and Queipo (after Franco's lieutenant).

In 1975, Franco died and Spain transitioned from a police state into a constitutional monarchy. A popular vote renamed the town of Franco Isla Mayor (Big Island) in 2000.

The Stock Certificate Design
The certificate's engraving by Luis Ramos features allegorical imagery:

- Mercury, symbolizing commerce, leans on cotton bales with his caduceus.
- A female allegory of industry, with an anvil and cogwheel, signifies mechanized labor.
- Between them, cotton threads weave into a spindle and a spider's web, representing female contributions to industry.

The background depicts agricultural scenes: a man plowing fields with oxen and another loading grain onto a harvester. The border design showcases entwined cotton bolls, emphasizing the marshes' agricultural output.

This certificate reflects the ambitious yet tumultuous history of the Guadalquivir Marshes and the efforts to transform them into productive farmland, blending art, commerce, and history.

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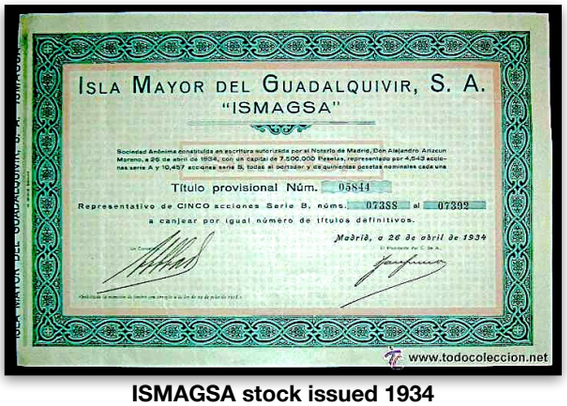
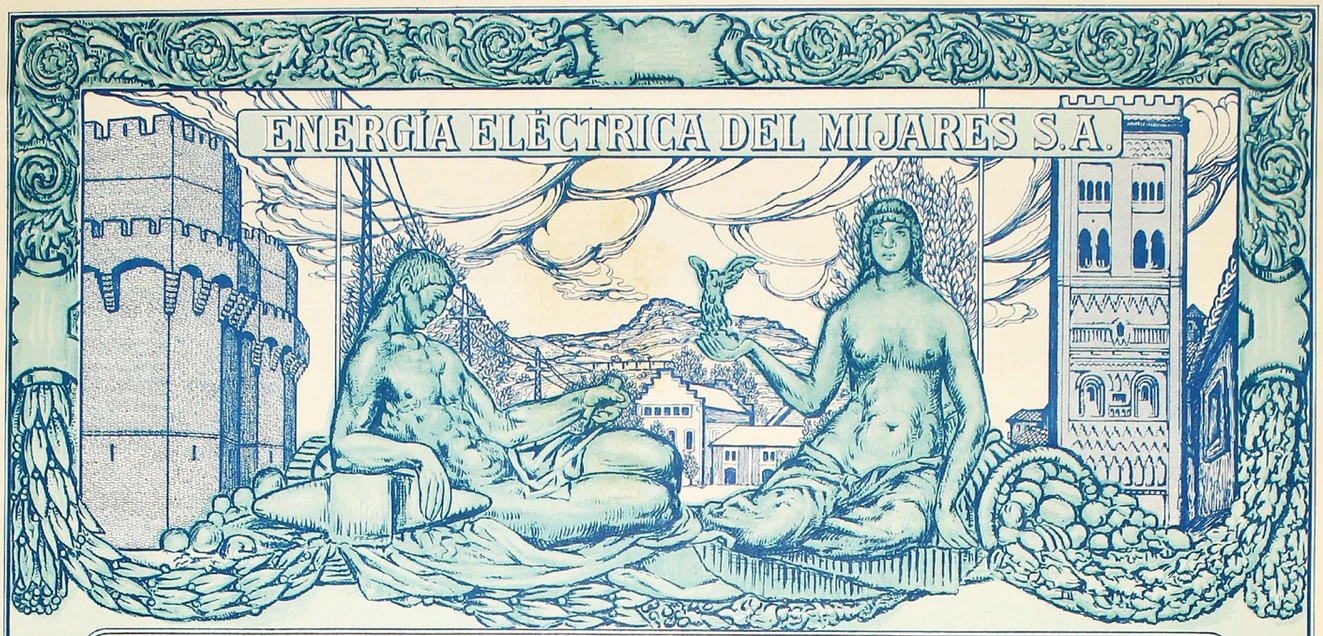


ISMAGSA stock issued 1934

ENERGÍA ELÉCTRICA DEL MIJARES, S. A.



SOCIEDAD ANÓNIMA DOMICILIADA EN VALENCIA, constituída por Escritura pública otorgada ante el Notario Don Pascual Soriano Roca, el 11 de Agosto de 1923, y aumentado su Capital Social por Escritura pública otorgada ante el Notario Don Mario Aristoy Santo, en 1.° de Abril de 1926, con arreglo a los acuerdos adoptados en Junta general extraordinaria de 17 de Marzo de 1926.

CAPITAL SOCIAL: 10.000.000 DE PESETAS

Emisión de 10.000 Obligaciones hipotecarias, acordada por la Junta general extraordinaria de Accionistas, de 24 de Marzo de 1929, y autorizada por Escritura pública otorgada ante el Notario Don Mario Aristoy Santo, en 16 de Abril de 1929. En la misma Junta general extraordinaria de 24 de Marzo de 1929, fué autorizado el Consejo de Administración para poner en circulación 5.000 Obligaciones, quedando las restantes en cartera, hasta nuevo acuerdo de la Junta general extraordinaria.

PRIMERA SERIE

La Sociedad reconoce a favor del portador del presente Título

TITULO Núm. [redacted]

UNA OBLIGACIÓN del valor nominal de QUINIENTAS PESETAS

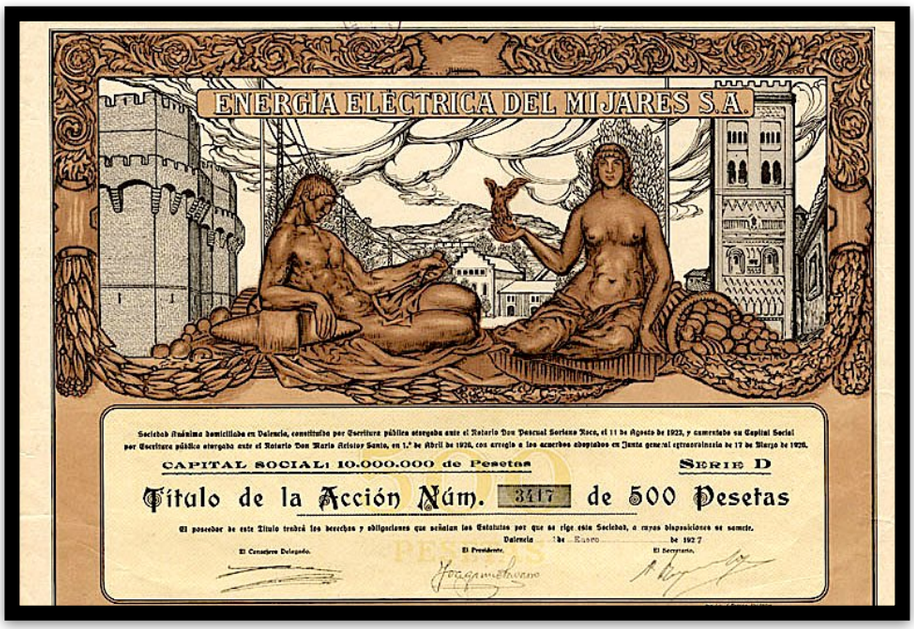
en las condiciones que se detallan al dorso.

Valencia 16 de Abril de 1929.

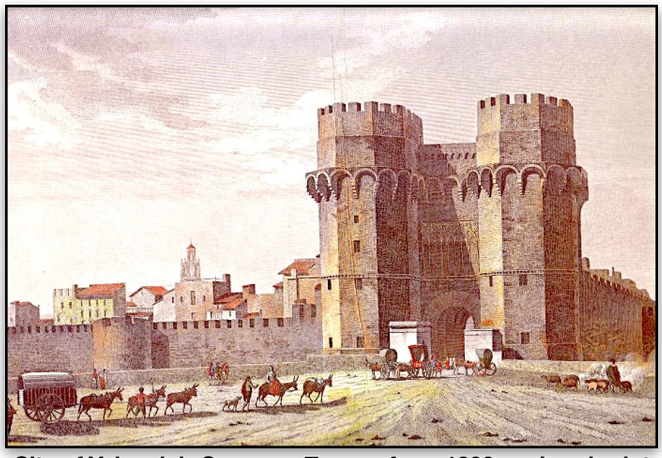
El Consejero Delegado. El Presidente. El Secretario.

IMP. LIT. J. ORTEGA - VALENCIA

Spain
ELECTRIC ENERGY OF MIJARES SA, VALENCIA, 1929 # 2065



Another Mijares Electric Energy Certificate in different colors



City of Valencia's Serranos Towers from 1800s colored print

Mudéjar tower of Teruel Cathedral

Neo-mudéjar Teruel Cathedral southern facade 1909

Location of Teruel, Valencia and Mijares River

Company Background
Founded in 1923, Mijares Electric Energy S.A. issued a range of certificates, including this rare 500 peseta 6% bond from 1929. This huge certificate is a lithographed printer's proof, crafted in blue and green on thick paper, measuring 17 by 22 inches. Some coupons are numbered "4761*" while others are left blank.

The company likely generated hydroelectric power from the Mijares River, a scenic 100-mile waterway with a 1,500-square-mile basin in eastern Spain. They sold power primarily in the Valencia province, although the inclusion of imagery from other areas like Teruel suggests aspirations for a broader reach.

Certificate's Design Features
The certificate shows:

- Left side: The Serranos Towers, Europe's largest Gothic city gateway, completed in 1391, are Valencia's historic fortifications.
- Right side: The Mudéjar Tower of the Cathedral of Teruel, is famous for its blend of Moorish and Christian architectural styles (see top and middle right). Mudéjar" (Arabic for allowed to stay) refers to Muslims remaining in Spain after the Christian Reconquest (1000–1492 CE).
- Art Nouveau elements feature prominently, like flowing leaves on the left and fruit cascading into a cornucopia (horn of plenty) on the right, symbolizing abundance and prosperity.

Allegorical figures also adorn the certificate:

- A male figure of industry with an anvil represents industry.
- A semi-nude female figure, perhaps Fortuna, holds an eagle — possibly referencing Salvator Rosa's 1658 painting, where the eagle symbolized "the reigning despots of Italy" at the time.

Valencia and Electrical Modernization
Valencia, the capital of its province, is well-known for orange cultivation, rice farming, and Lladró porcelain. In 1900, 15 smaller electrical businesses had fought with gas companies for electrical distribution rights. Most of the electricity back then was used for street lights.

Between 1915 and 1922, the electrical companies merged. So by 1922, Valencia moved from gas lights to electric lights. Mijares Electric Energy contributed to this modernization by providing reliable hydroelectric power.

Modern Valencia
Valencia's transformation continued into the twenty-first century. In 2005, the city unveiled the City of Arts and Sciences, a striking collection of modernist architecture and a major tourist attraction. However, the project has left the region grappling with significant debt.

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Asociación Mercantil Española

Sociedad Anónima

Capital 1.000,000 ptas.

Dirección: BARCELONA

Sucursales: Albacete - Alicante - Bilbao - Gijón - La Coruña - Madrid - Málaga Sevilla - Valencia - Valladolid - Vigo - Zaragoza.

Subdirecciones: En todas las capitales de España incluso las Islas Baleares y Canarias.

Delegados: En las cabezas de partido.

Objeto: Extinción del comercio de mala fé.

Título *á favor del abonado*

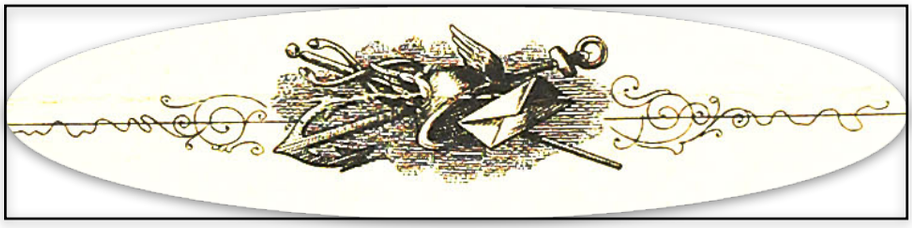
Barcelona de de 19

IMP. LIT. ORTEGA-VILA

ASOCIACIÓN MERCANTIL ESPAÑOLA
Nº
BARCELONA

Spain

SPANISH TRADE ASSOCIATION SA, BARCELONA, 19— #2151



Beneath their list of branches, sub-directorates, delegates, and objective, is a decorated line with a caduceus, anchor & letter denoting commerce, sea transport & communication.

The Spanish Trade Association Certificate
This certificate, issued in the early 1900s, represents the Spanish Trade Association and its commitment to promoting ethical business practices. The association was headquartered in Barcelona, with branch offices in other key Spanish cities such as Madrid, Malaga, and Seville.

The certificates were nominal, meaning they were made out to specific individuals, though the one described here was unissued. These likely served as membership credentials for the association, emphasizing its role as a trade organization rather than an independent business or investment opportunity.

Design and Symbolism
The certificate's artwork conveys themes of communication, transportation, and commerce:

- **Illuminating Light**: A prominent light shines over the entire design, symbolizing ethical guidance and transparency in trade.
- **Telegraph Wires**: Rising to a pole on the top left, these represent modern communication methods.
- **Land and Sea Transport**: A steamship navigates the coastline, while a train emerges from a tunnel, signifying efficient transport infrastructure.

On the left side is a parcel of goods and symbols representing various aspects of trade and industry:

- **Agricultural Tools**: A pitchfork and spade for farming and production.
- **A caduceus**, the traditional symbol of trade.
- **Barrel —** the containers of the day!
- **Bale** marked MC 127. This could refer to the grade of cotton or be a bale identification number. Alternatively, it could stand for *Código Mercantile*, referring to the Mercantile or Commercial Code of Spain.
- **Book** with the title *Mayor*, meaning senior, or superior, or possibly the business term for wholesale
- **Horn of Plenty**: Overflowing with goods, symbolizing prosperity.
- **Export Goods**: Items such as hay, shoes (representing leather exports), and cotton.
- **Anchor and Ropes**: Signifying maritime trade and connections.

Role of the Spanish Trade Association
The association appears to have been a precursor or complement to modern Chambers of Commerce, focusing on:

- **Trade Facilitation**: Promoting domestic and international trade through events like fairs and exhibitions.
- **Advocacy**: Acting as a unified voice for Spanish merchants, lobbying for favorable policies and improved infrastructure.
- **Education**: Offering training in business practices, accounting, and emerging trade technologies.
- **Market Information**: Publishing updates on market trends, regulations, and economic developments to assist members in staying competitive.
- **Conflict Resolution**: Providing mediation and arbitration services to resolve disputes among members.

Historical Context
The Spanish Trade Association emerged in the late 19th century, alongside similar institutions like the Chambers of Commerce, Industry, and Navigation, formalized by a Royal Decree in 1886. These organizations mirrored France's model of commerce chambers established in the mid-1600s.

I found a 1906 newspaper advertisement saying their board of directors comprised industrialists and merchants of the greatest importance, directed by the lawyer Adolfo E. Ruiz. It established branches and representatives in all the Spanish provincial capitals and judicial districts of Spain.

Advertisement in 1906 newspaper

Today, remnants of this institution likely continue as a business advocacy group, similar to the US Chamber of Commerce, focusing on advertising, public relations, and trade facilitation.

This certificate offers a glimpse into Spain's industrial and trade history, highlighting efforts to unite businesses under shared values of ethical commerce and mutual prosperity.

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WARRANT NUMBER.
303106
NUMÉRO DU TITRE.

BARCELONA
TRACTION, LIGHT AND POWER
COMPANY LIMITED.

INCORPORATED UNDER THE LAWS OF CANADA WITH LIMITED LIABILITY.
SOCIÉTÉ ANONYME CONSTITUÉE SUIVANT LES LOIS DU CANADA.

ORDINARY SHARE

ACTION ORDINAIRE

SHARE WARRANT TO BEARER
FOR
ONE
ORDINARY SHARE
WITHOUT NOMINAL OR PAR VALUE.

This is to Certify *that the Bearer of this Warrant is the Proprietor of*

ONE

fully-paid Ordinary Share without nominal or par value in the Capital of the

BARCELONA TRACTION, LIGHT AND POWER COMPANY LIMITED,

subject to the Company's Charter, Special Acts and By-laws for the time being in force.

TITRE AU PORTEUR
D'
UNE
ACTION ORDINAIRE
SANS VALEUR NOMINALE.

Le Porteur du présent Titre *est Propriétaire d'*

UNE

Action Ordinaire sans valeur nominale de la

BARCELONA TRACTION, LIGHT AND POWER COMPANY LIMITED,

entièrement libérée, suivant les termes de la Charte Constitutive, des lois spéciales et des Statuts de la Compagnie actuellement en vigueur.

ORDINARY SHARE

Given under the Common Seal of the Company this 10th *day of* February 19 32

Délivré sous le Sceau de la Compagnie ce

COUNTERSIGNED:
CONTRESIGNÉ.
Guarantee Insurance and Investment Company Ltd.

By / Par

AUTHORISED OFFICER
FONCTIONNAIRE DÉLÉGUÉ

THIS WARRANT IS NOT VALID UNTIL COUNTERSIGNED BY THE Guarantee Insurance & Investment Company Ltd.

CE TITRE POUR ÊTRE VALABLE DEVRA ÊTRE CONTRESIGNÉ PAR LA Guarantee Insurance & Investment Company Ltd.

H. Malcolm Hubbard
CHAIRMAN.

ASSISTANT SECRETARY.
LE SECRÉTAIRE DÉLÉGUÉ.

Waterlow & Sons Limited, London Wall, London, E.C.

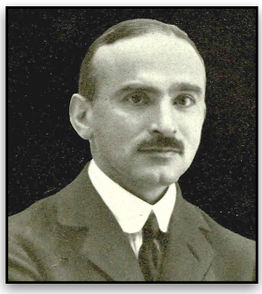
Spain (Issued in Canada)
BARCELONA TRACTION, LIGHT, & POWER COMPANY LIMITED, 1932 #2026

Barcelona Traction, founded 1911; street lights left, electric tram car center, Colon Avenue, Barcelona right

Barcelona Traction Company Development
In 1911, Frederick Stark Pearson, a brilliant American electrical engineer, established the Barcelona Traction, Light, and Power Company in Catalonia, Spain. Pearson was also responsible for setting up power stations in the United States, São Paulo (Brazil), Mexico, and for British American Nickel in Canada.

Frederick Stark Pearson

Dannie Heineman later managed the company. He was a Belgian-American engineer and entrepreneur, under the umbrella of Sofina, an international public utility holding company. Heineman ran Sofina from 1905 to 1955, contributing significantly to its global operations.



Dannie Heineman

The Purpose of Barcelona Traction
Barcelona Traction aimed to provide electricity and develop associated infrastructure in Catalonia. At the time, electricity use was predominantly for street lighting and public tram systems. The company relied on hydroelectric power plants built on rivers like the Ebro, Noguera, Llobregat, and Ter, alongside coal-powered generators.

The Stock Certificate
The company issued shares in Toronto, Canada, as single bearer stocks with no specified value. Due to Spain's currency restrictions, foreign investors — particularly Belgians — dominated Spanish utility companies like Barcelona Traction. Bonds were also issued in pounds sterling to attract international investors.

The certificates were printed by Waterlow and Sons, a renowned British company specializing in currency, stamps, and securities. The certificates were bilingual, in English and French, reflecting the Canadian and Belgian investor base. In Belgium, about 40% of the population spoke French, primarily in Brussels, while the remaining 60% spoke Flemish.

Challenges and Legacy
Despite its contribution to Catalonia's industrial and commercial development, Barcelona Traction faced significant hurdles:

- **1919 General Strike**: A 44-day strike by company workers escalated into a broader labor movement, ultimately resulting in an **eight-hour workday** in Spain.
- **Spanish Civil War (1936–1939)**: The conflict disrupted operations, and Spain refused to pay bondholders.
- **Post-War Franco Era**: The Spanish government, under Franco, maintained strict restrictions on foreign businesses, further delaying payments to bondholders.

In 1948, bondholders, frustrated by years of unpaid interest, sued the Spanish government. The court declared Barcelona Traction bankrupt, liquidating the company to pay off debts. Most of the proceeds went to **Belgian shareholders**, who owned 88% of the company.

The Role of Juan March Ordinas
Juan March Ordinas, a controversial figure, played a pivotal role in Barcelona Traction's downfall.

- **Early Life**: March started as a smuggler and rose to prominence as a banker with his **Banca March**.
- **Political Ties**: He supported Franco during the Spanish Civil War, gaining significant influence after Franco's victory.
- **Manipulation**: In the 1940s, March purchased £0.5 million worth of Barcelona Traction bonds at a discount. He then sued the company for default and was awarded ownership worth $10 million.

March's dealings with Barcelona Traction epitomized his reputation for leveraging financial and political opportunities to amass wealth.

The International Dispute
In 1958, Belgium made a claim to the International Court of Justice. Negotiations broke down four years later and Belgium filed another claim. What happened? Spain said the company was Canadian, so Belgium had no claims against Spain!

After years of legal proceedings, the ICJ sided with Spain in 1970. Canada refused to press the issue.

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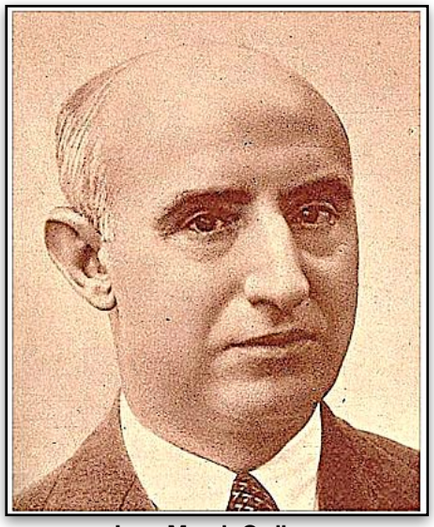
https://en.wikipedia.org/wiki/Dannie_Heineman#/media/File:Portrait_of_Dannie_Heineman.jpg



Juan March Ordinas

The Channel Tubular Railway Preliminary Company Ld.

(SOCIÉTÉ PRÉLIMINAIRE DU CHEMIN DE FER TUBULAIRE DE LA MANCHE (LIMITED))

(CAPITAL : £. 40.000 Stg. (FRcs 1.000.000.)

Incorporated under the Companies Acts 1862 to 1890.
Registered in London the 17th day of March 1892.

Incorporée sous les Lois de 1862 à 1890 sur les Compagnies.
Enregistrée à Londres le 17 Mars 1892.

Parts de Fondateurs

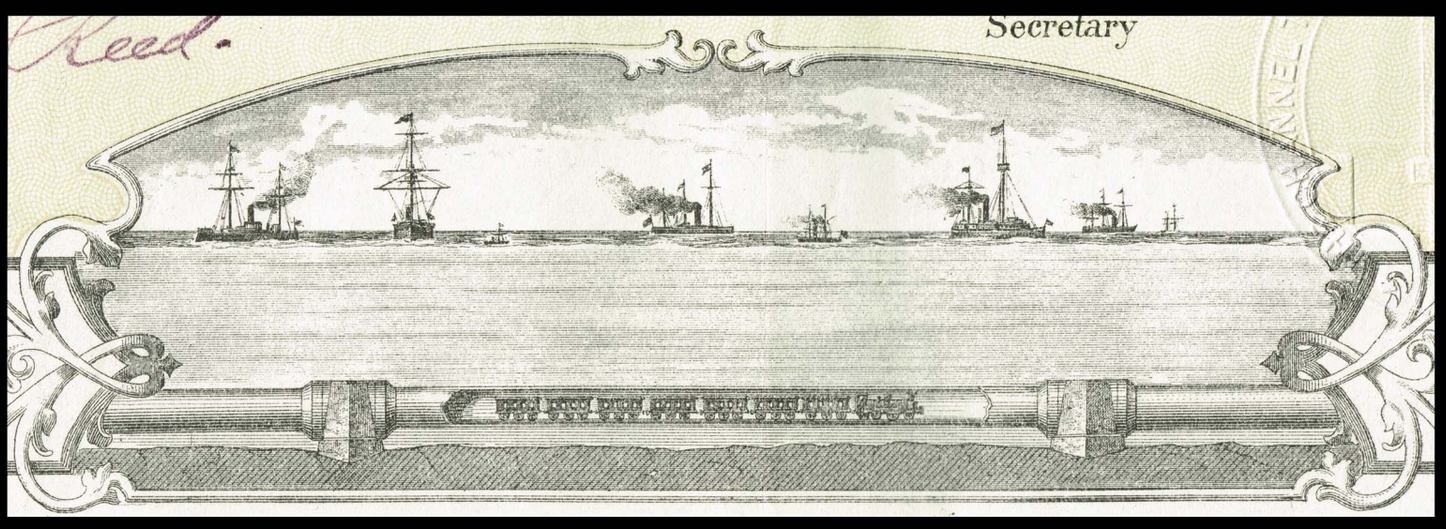
№ 92.796 to 92.800

The Bearer of this Certificate is entitled to **FIVE** "PARTS DE FONDATEURS" as provided in the Extracts of the Company's Agreements and its Special Resolution printed on the back hereof, and in accordance with the Articles of Association of the Company.

Le porteur du présent Certificat a droit à **CINQ** "PARTS DE FONDATEURS" en vertu de l'extrait des Conventions de la Société et à sa Résolution Spéciale imprimés ci-contre, et conformément à ses Statuts.

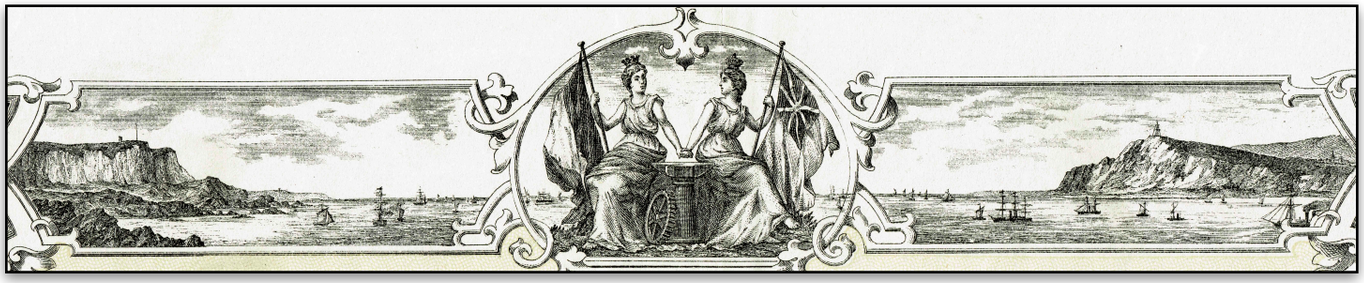
London this 19th day of May 1892.
Sealed in the presence of W. Wills.

E. J. Reed. Secretary



United Kingdom

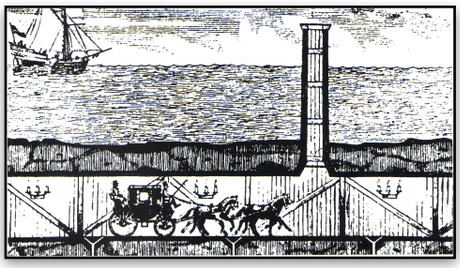
CHANNEL TUBULAR RAILWAY PRELIMINARY Co. Ltd., London, 1892 #2090



The White Cliffs of Dover left. Allegories of France and England clasping hands over an anvil and cogwheel for industry. Calais right

Embossed stamp

Fascinating History of the Channel Tunnel
While many associate the Channel Tunnel (the "Chunnel") with modern construction efforts in the 1980s, its history dates back much further. In 1802, French mining engineer Mathieu-Favier proposed a tunnel featuring oil lamp lighting, horse-drawn carriages, and a mid-Channel island for horse changes. Later, French engineer Aimé Thomé de Gamond surveyed the area and pitched the idea to Napoleon III.

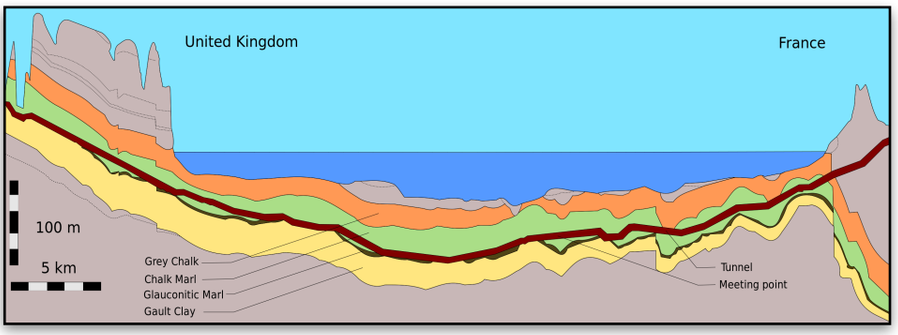


Mathieu-Favier's plans for tunnel in 1802

By 1865, the idea caught the attention of British officials, with George Ward Hunt submitting a proposal to the British Chancellor of the Exchequer. In 1881, British and French contractors drilled approximately a mile of tunnel on both sides. However, they halted the project in 1883 due to fears France could use it to invade England.

The First Channel Tunnel Certificate
In 1892, the **Channel Tubular Railway Preliminary Company**, Ltd. became the first and only organization to issue stock certificates for a tunnel project. The French called it **Société Preliminaries du Chemin de Fer Tubulaire de la Manche**, Ltd.

A diversion about wordiness!
I have often noticed blurbs in English and French (often seen on Canadian products) show the French language to be less succinct. For all alphabetic languages, Latin seems the most succinct, though no one speaks it today!



Mandarin is even more succinct, as it has only one character per syllable. But it is perhaps the hardest language in the world to learn. The Washington Post translated Article One of the Universal Declaration of Human Rights into 33 languages. Vietnamese used the most characters at 214, French used 179, English used 169. Mandarin used only 42 characters.

Anglo-Saxon simplicity came up with the "Chunnel," to describe the channel tunnel. The French labeled it *Le Tunnel sous la Manche*. English call the body of water the Channel; the French call it l*a Manche*, meaning the sleeve (of water).

Post-War Proposals and Challenges
By 1919, following the devastating losses of World War I, British Prime Minister Lloyd George advocated for a tunnel to strengthen defense ties with France. Despite repeated offers, including by Winston Churchill during World War II, France declined. False rumors also circulated during World War II that Hitler was constructing a tunnel using forced labor.

After the war, renewed cooperation led to discussions of various designs, including tunnels, bridges, and hybrid solutions. Yet, concerns over ventilation, driver fatigue, terrorism, and accidents stalled progress.

The Modern Chunnel Takes Shape
In 1986, the Treaty of Canterbury finalized plans for a rail tunnel, establishing a frontier point halfway through. Construction began under the supervision of the Channel Tunnel Safety Authority, with the concession lasting 100 years (1987–2086).

The project, completed in 1994, included two rail tunnels and a service tunnel for maintenance. The total cost was £4.65 billion (approximately $14 billion today), an 80% cost overrun. Engineers constructed the tunnel primarily through chalk, ensuring stability.

Engineering Marvels
- **Temperature Management**: The trains' heat output raises the tunnel temperature to 122°F. To counter this, engineers installed 300 miles of cooling pipes circulating 22 million gallons of water, cooled by refrigerant systems.
- **High-Speed Rail**: Initially, the absence of a high-speed rail link from London to Folkestone delayed passenger projections. Completed in 2007 for £6.8 billion, the link now enables a 2¼-hour journey from London to Paris.

Recognition and Impact
In 1994, the American Society of Civil Engineers named the Chunnel one of the Seven Wonders of the Modern World. Today, it facilitates 20 million passengers and 23 million trucks annually.

Financial and Social Challenges
The tunnel operated at a loss until 2012, but in 2023, Getlink, the Chunnel's parent company, reported $2 billion in revenue, with an EBITDA (earnings before interest, taxes, depreciation and amortization) of $1.07 billion and equity of $9 billion. However, the Chunnel remains a point of contention due to illegal immigration attempts into Britain, a problem as yet unresolved.

The Chunnel stands as a testament to human ingenuity, overcoming centuries of political and logistical obstacles to connect Britain and mainland Europe like never before.

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UNITED STATES OF AMERICA.

No. 1241

$500

LAND AND PROPERTY IN THE STATE OF VERA CRUZ

FIRST MORTGAGE BONDS

Know all men by these presents that I, Antonio Lopez de Santa Anna at present in the City of New York am indebted to

or **Bearer** in the sum of FIVE HUNDRED DOLLARS which sum I promise to pay the **Bearer** hereof in lawful money of the United States of America on the twenty eighth day of June A.D. One thousand eight hundred and sixty eight in the City of New York, State of New York, with interest thereon from the twenty eighth day of June A.D. One thousand eight hundred and sixty six at the rate of seven per cent per annum payable annually at the Banking House of in the City of New York.

This Bond is one of a Series of fifteen hundred Bonds amounting to Seven hundred and fifty thousand Dollars, and the **Bearer** hereof is entitled to the security derived from a MORTGAGE OR DEED OF TRUST duly executed and delivered by the said Antonio Lopez de Santa Anna to HENRY G. NORTON AND VIRGIL WHITCOMB **Trustees**, and bearing even date with this Bond and covering several pieces of property in all amounting to about three hundred and Seventy eight square miles of land in the State of Vera Cruz, Mexico, together with two palaces and grounds one situated in the Island of St. Thomas and the other in Turbaco in the Republic of New Granada.

In Witness Whereof I have hereunto set my hand and affixed my Seal this twenty eighth day of June A.D. One thousand Eight hundred and sixty six.

Sealed and delivered in presence of

Theodore C. Vennibyo

Theo. Walters

A. L. de Sta Anna

STATE OF NEW YORK – CITY AND COUNTY OF NEW YORK.

Be it known that on this day of June A.D. One thousand eight hundred and sixty six before me, the Vice Chancellor, the Commissioner, and Vice Chancellor, in said City and County personally came ANTONIO LOPEZ DE SANTA ANNA to me known to be the same person who executed the foregoing Bond and acknowledged to me that he executed the same.

In Witness Whereof I have hereunto subscribed my name and affixed my official seal at office the day and year above written.

Richd. L. Pinch Actuary Chancellor N.Y.

LAND AND PROPERTY IN THE STATE OF VERA CRUZ

United States
SANTA ANNA BOND, NEW YORK, 1866 #2372

Santa Anna's signature and wax monogram AL de SA

Santa Anna, Ambitious, Shifty, but Resilient
Santa Anna (1794–1876) was a Mexican general and president whose career spanned more than 40 tumultuous years. Known for his vanity, love of titles, womanizing, and gambling, he held the presidency seven times and is often criticized as one of the most detrimental leaders in Mexico's history. Under his rule, Mexico lost over half its territory, including Texas and vast regions ceded to the United States.

Santa Anna in full military regalia

At just 16, Santa Anna became a military cadet, quickly rising through the ranks. By 27, he was a general after supporting Emperor Iturbide, who ruled Mexico following its independence in 1821. However, Santa Anna turned against Iturbide, leading to the establishment of the Mexican Republic. In 1829, he secured a major victory against Spain's attempt to reconquer Mexico at the Battle of Tampico.

The Texas Revolution and Alamo Legacy
In 1836, Santa Anna's forces faced the Texan independence movement. At the infamous Battle of the Alamo, his 2,000-strong army defeated 200 Texan defenders, killing 189 and executing 342 prisoners. However, the tide turned later that year when Sam Houston and 910 Texan soldiers defeated Santa Anna's 1,360 troops at the Battle of San Jacinto. Santa Anna was captured and forced to sign a treaty granting Texas its independence.

Exile and Return
Following his defeat, Santa Anna was exiled to the United States but soon returned to retire on his hacienda in Veracruz. In 1838, he lost a leg during combat with the French in Veracruz, ceremoniously burying it with full military honors! His cork prosthetic leg is still on show at the Illinois State Military Museum.

Santa Anna's political fortunes remained volatile. In 1845, he was exiled to Cuba but recalled during the Mexican-American War (1846–1848). Known for his duplicity, he secretly negotiated with the United States to sell parts of Mexico, only to renege on these deals once he returned to Mexican soil.

After the war, Mexico again exiled him to Jamaica, Colombia, the US, and St. Thomas Island. In 1855, he left Mexico for the final time, marking the end of his political career.

Santa Anna's Scammy Bond
While in the US 1864-1867, he schemed to embezzle funds by having Norton and Whitcomb create a bond backed by properties abroad, which he did not own. Claiming the funds were for an "offensive" in Mexico, he issued 1,500 bonds for $500 each, totaling $750,000, worth perhaps $18 million today.

The bond was a total failure. He never repaid the capital, and very few investors bit. Several unsold bonds survive like this one. The vignettes were fanciful. The Mexican government had confiscated the estates and lands he pledged. He claimed 378 square miles in Veracruz, a palace in Turbaco in Columbia, and a palace on St. Thomas Island!

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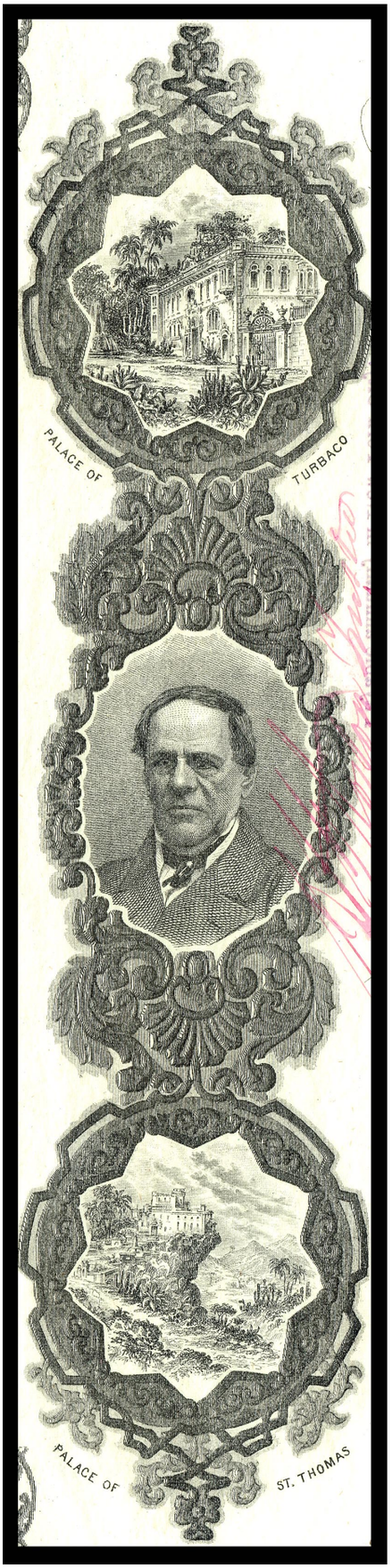
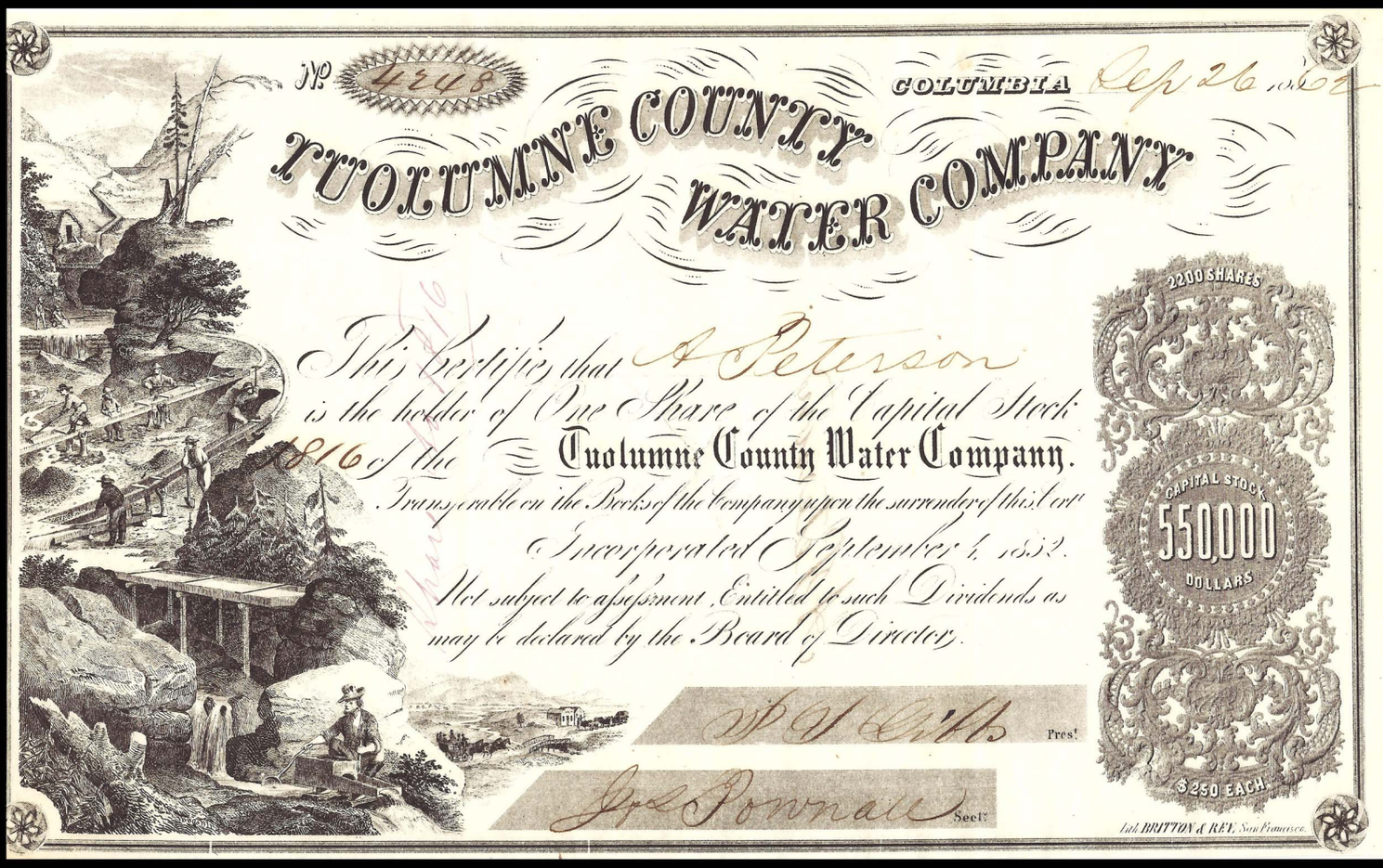
https://en.wikipedia.org/wiki/Antonio_López_de_Santa_Anna#/media/File:SantaAnnaSurrender.jpg

1836, Santa Anna (center) surrenders at San Jacinto to Sam Houston, lying with ankle injury

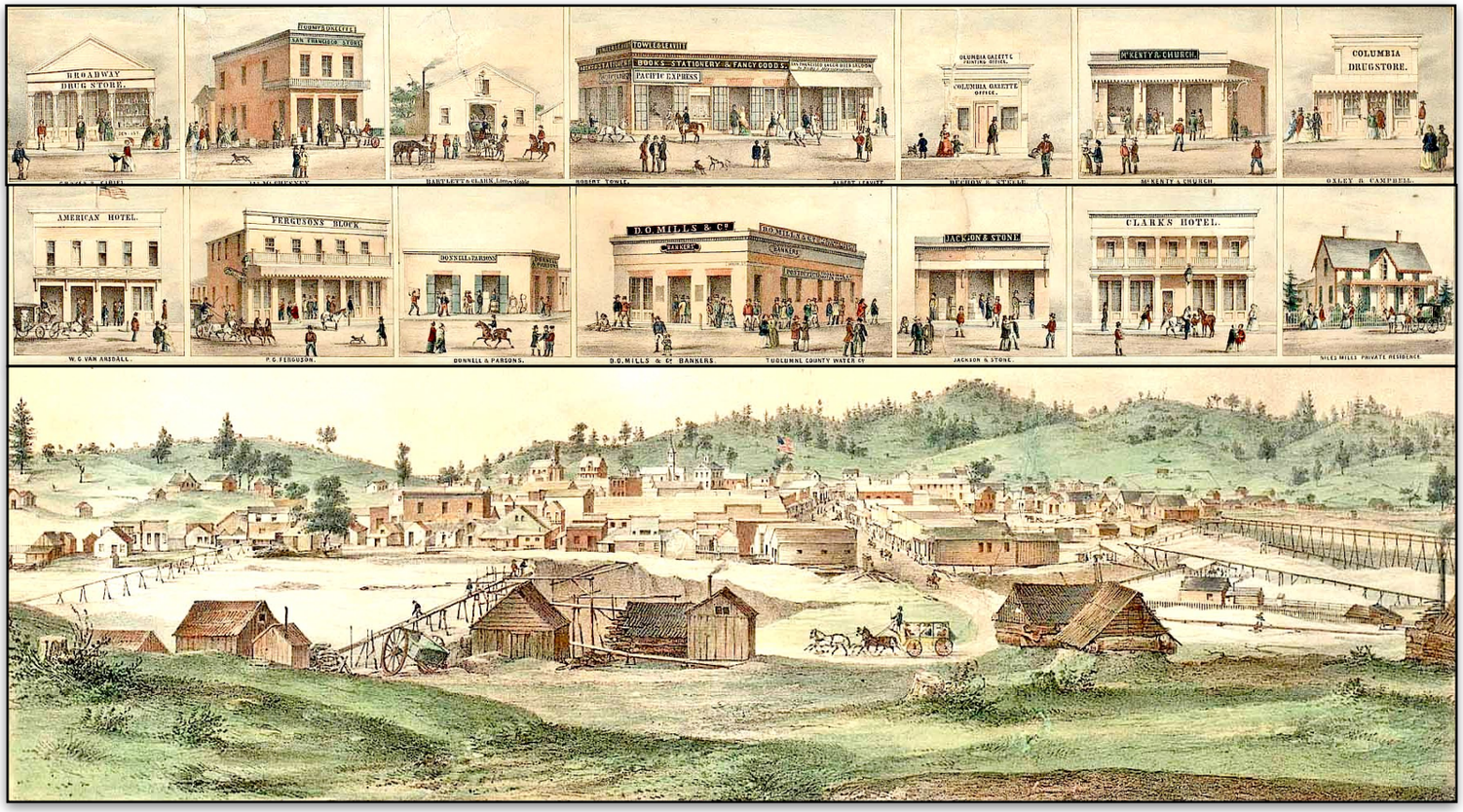


At top, Santa Anna's non-existent palace in Turbaco; in the middle, an engraving of Santa Anna; at bottom, another of his non-existent palaces in St. Thomas Island


No 4248
COLUMBIA
Sep 26 1852
TUOLUMNE COUNTY WATER COMPANY
This Certifies that A Peterson
is the holder of One Share of the Capital Stock
1816 of the Tuolumne County Water Company.
Transferable on the Books of the Company upon the surrender of this Cert.
Incorporated September 4, 1852.
Not subject to assessment, Entitled to such Dividends as
may be declared by the Board of Directors.
2200 SHARES
CAPITAL STOCK
550,000
DOLLARS
$250 EACH
Pres.
Sect.
Lith. BRITTON & REY, San Francisco.

United States

TUOLUMNE COUNTY WATER COMPANY, COLUMBIA, CA, Incorporated 1852 #1928



Views of Columbia, Southern Mines, CA, in 1855, taken from lithograph, courtesy Columbia Chamber of Commerce

Location of Tuolumne and Columbia, CA

The Story of the Tuolumne County Water Co.
I take much of this story from Bob Kerstein of Scripophily.com. Founded in 1852 during California's gold rush, the Tuolumne County Water Company aimed to address the critical need for water in mining operations. Its name, "Tuolumne," originates from Native American languages, with meanings such as "many stone houses" or "land of mountain lions."

Many think the Californian gold rush centered around Sutter's Mill, but they discovered gold hundreds of miles away too. In 1850, miners abandoned Columbia in Tuolumne County when streams dried up, but they returned the following year when rainfall revived placer mining (extracting gold from stream beds). Recognizing the need for a steady water supply, miners established the Tuolumne County Water Company to channel water from Five Mile Creek.

Over the next five decades, the company built an extensive network of dams, reservoirs, and ditches. Initially serving placer miners, it later supplied water for hydraulic and quartz mining, sourcing it from the South and Middle Forks of the Stanislaus River. Despite initial success, early water supplies were insufficient, prompting further expansion of the channel system.

The company eventually acquired 22 smaller water companies. By 1898, it ventured into hydroelectric power production and later merged with the San Francisco Power Company. In 1927, Pacific Gas and Electric Company (PG&E) acquired the enterprise.

Raising the money — the stock certificate
D.O. Mills Bankers of Sacramento had to help with $300,000 to complete the 1852 project. The company also issued $550,0000 of stock starting in the 1850s. The left side of the certificate shows common placer gold mining techniques of the era. Flowing water pushed sand along, but gold, being heavier, sank to the bottom of water chutes.

Columbia's Transformation in the Gold Rush Era
Once equipped with water, Columbia flourished, producing $100,000 worth of gold per week. By late 1852, the town housed 5,000 residents and saw rapid infrastructure development, including:

- 30 saloons
- 21 grocery stores
- 17 dry goods shops
- 4 hotels
- Banks, theaters, fire companies, schools, and churches

Incorporated in 1854, Columbia's early wooden structures succumbed to a massive fire, attributed to an arsonist denied credit. Damage exceeded $500,000. The community swiftly rebuilt with masonry and installed water cisterns for fire protection.

By 1855, Columbia was one of California's most prominent gold rush cities, known as "The Gem of the Southern Mines." Hydraulic mining, which used high-pressure water cannons to access underground gold, became widespread but caused significant environmental damage.

Columbia even pioneered gas lighting in California, though its early system failed due to pitch buildup in the gas pipes.

Decline and Preservation
By the 1870s, Columbia's gold reserves dwindled, and residents moved on, dismantling buildings to access the soil beneath for residual gold. In total, the area produced an estimated 4.2 million ounces of gold, valued at over $10 billion today.

In 1945, the State of California established Columbia State Historic Park, preserving the town as a living museum. Visitors can now experience the rich history of "The Gem of the Southern Mines," restored to reflect its 19th-century glory.

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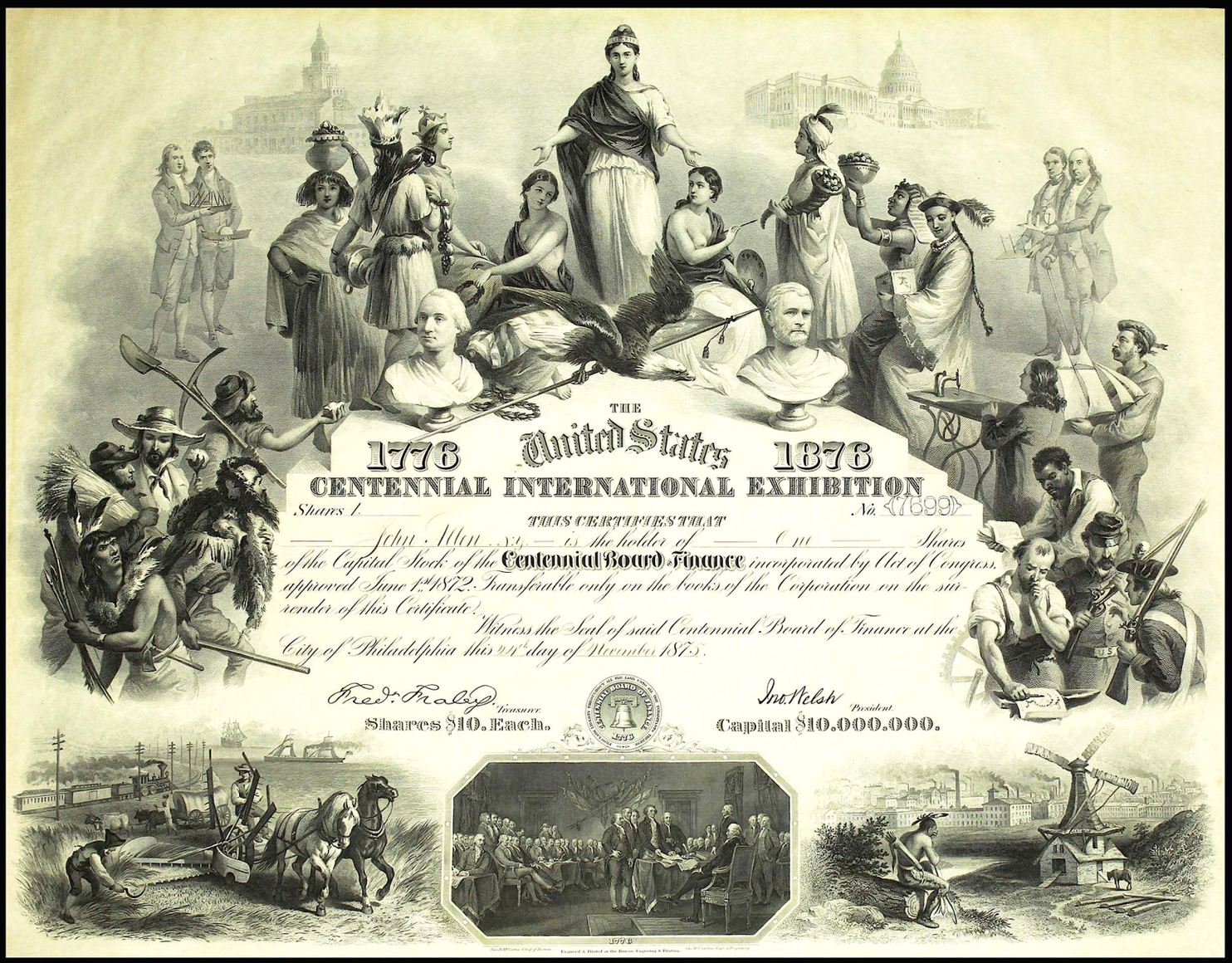
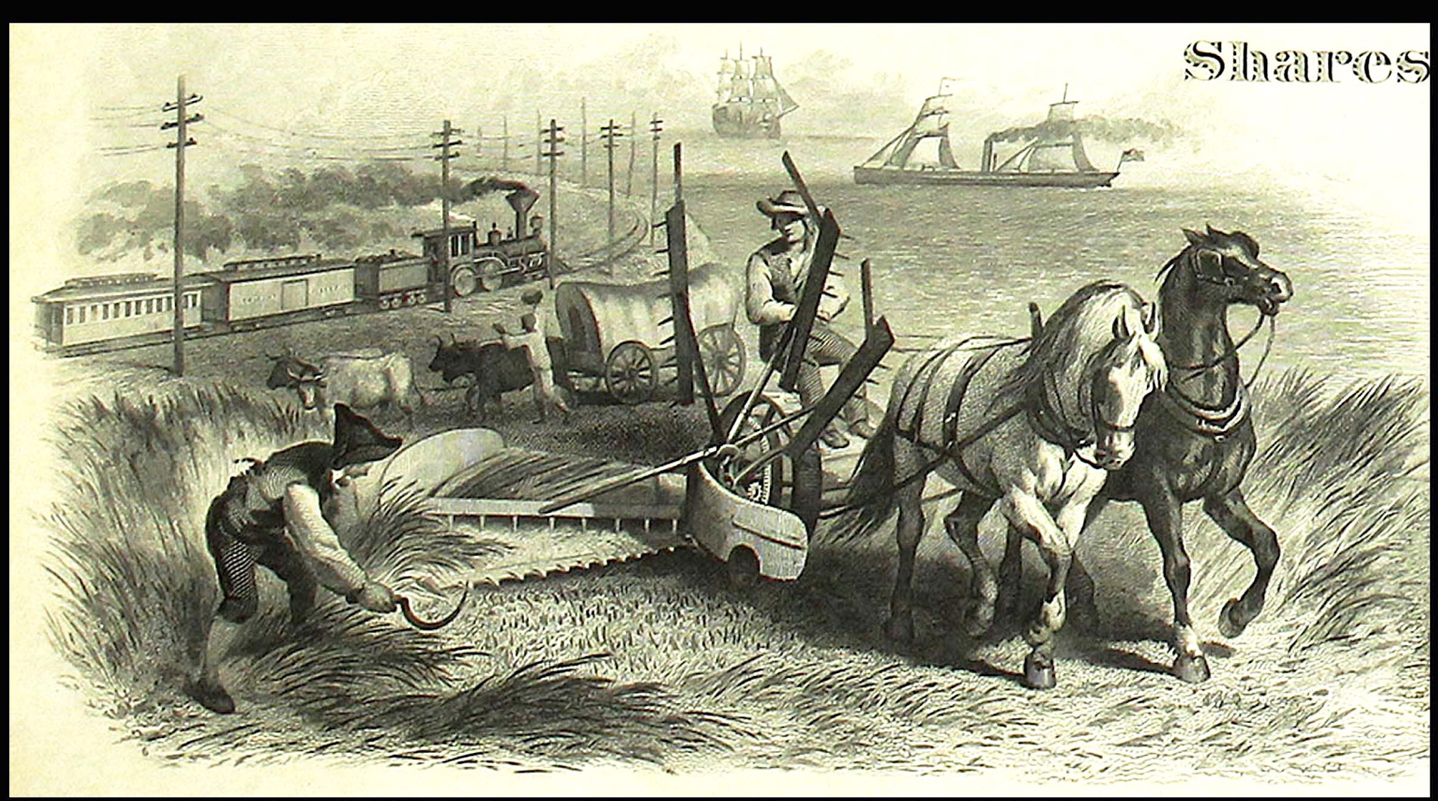
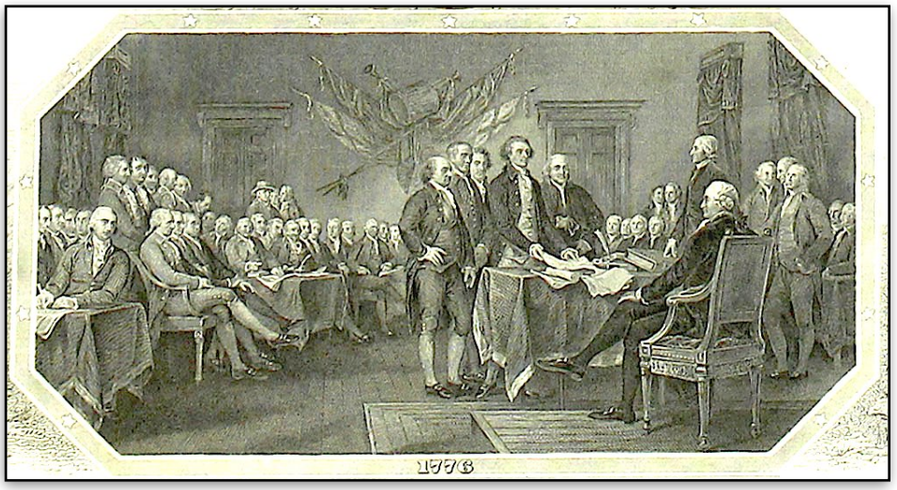

THE
United States
1776 1876
CENTENNIAL INTERNATIONAL EXHIBITION
Shares 1. No. 17699
THIS CERTIFIES THAT
John Allen N.Y. is the holder of One Shares
of the Capital Stock of the Centennial Board of Finance incorporated by Act of Congress,
approved June 1st 1872. Transferable only on the books of the Corporation on the sur-
render of this Certificate.
Witness the Seal of said Centennial Board of Finance at the
City of Philadelphia this 9th day of November 1875.
Fred'k Fraley Treasurer
Shares $10. Each.
Jno. Welsh President
Capital $10.000.000.
1776

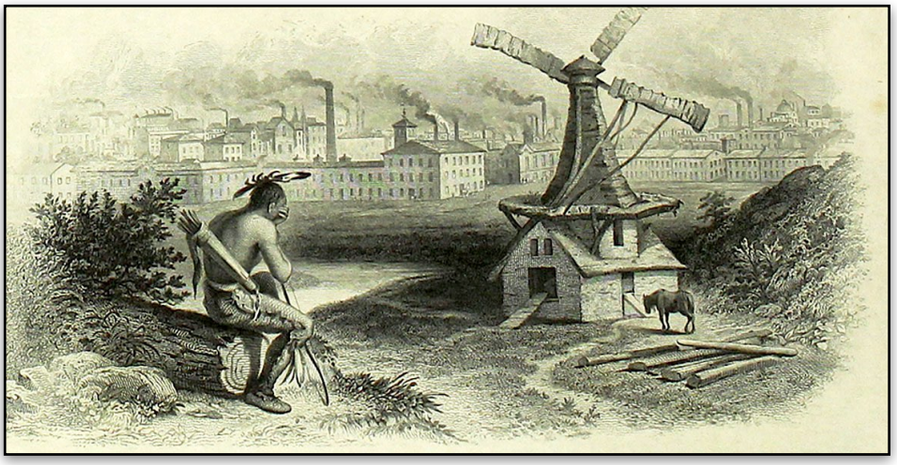

Shares

United States

CENTENNIAL INTERNATIONAL EXHIBITION, PHILADELPHIA, 1876 # 2171



Declaration of Independence



Indian reflects on civilization

A magnificent engraving masterpiece of historical significance

This Centennial Exhibition bond, issued on November 24, 1875, to John Allen, is an extraordinary piece of art and history. This oversized stock certificate, printed on cream parchment paper, measures 21¾ by 25⅞ inches, with the image itself occupying 15½ by 19½ inches. Issued to finance the $10 million Centennial International Exhibition in Philadelphia, it celebrated the 100th anniversary of the Declaration of Independence.

Designed by some of the Bureau of Engraving and Printing's finest artists, the bond is regarded as one of the most beautiful and largest certificates ever produced.

- **Bottom Left Illustration**: Depicts wheat harvesting with a horse-drawn reaper. Background elements include a Conestoga wagon, train, sailing ship, and steamship.
- **Center Engraving**: A reproduction of Frederick Girsch's engraving of *The Declaration of Independence*, based on John Trumbull's 1817 painting in the Capitol Rotunda. This scene shows the presentation of the Declaration's first draft on June 28, 1776, rather than the July 4 signing.
- **Bottom Right Illustration**: Features a Native American contemplating industrial progress, symbolized by factories and a dilapidated windmill. This reflects 19th-century perspectives of Native Americans as "uncivilized."

The certificate's central design includes Liberty standing tall, flanked by allegories of art and Nike, the Greek goddess of victory, crowning a bust of George Washington. Below Liberty, busts of Washington and Ulysses S. Grant are accompanied by an eagle and an American flag.

The steps leading to Liberty feature foreign dignitaries symbolizing international unity, including figures representing Africa, China, and the Arab world. Additional allegories depict South America and medieval Europe. Below the steps, two scenes contrast 1776 and 1876: on the left, Native Americans, farmers, and trappers represent the former; on the right, soldiers, an African American reading, and inventors with machinery symbolize the latter.

The background features historical figures like Benjamin Franklin and Robert Fulton, alongside faint images of significant landmarks such as the Boston Old State House and the Capitol.

The use of a kind of sfumato with the engraving simulates the figures being in the distance.

The Centennial Exhibition of 1876

The Centennial Exhibition, officially titled *The International Exhibition of Arts, Manufactures, and Products of the Soil and Mine*, was the first major world fair held in the United States. Spanning 10 years of planning, it showcased the nation's emergence as an industrial powerhouse.

- **Origins**: Proposed by Midwest mathematics professor John Campbell in 1866, the idea gained traction when Congress authorized fundraising in 1871. Contributions included $1,784,320 from private shares, $1.5 million from Philadelphia, $1 million from Pennsylvania, and $1.5 million from Congress.
- **The Event**: Held on 450 acres in Philadelphia's Fairmount Park, it featured 37 nations, 30,000 exhibits, and over 200 buildings. The six-month exhibition drew 10 million visitors, representing 20% of the US population at the time.

Highlights of the Exhibition

- **Technology**: The largest steam engine ever built, the 650-ton Corliss engine, powered the machinery in Machinery Hall. It weighed 650 tons and stood 70 feet tall. After the exhibition, it powered the Pullman's train car factory for another 30 years. Visitors marveled at innovations like Alexander Graham Bell's telephone, Remington typewriters, Heinz ketchup, and Hire's root beer.
- **Science and Nature**: Exhibits included taxidermied wildlife, rock collections, aquariums, and live demonstrations by 300 Native Americans from 53 tribes.
- **Architecture**: The Main Exhibition Building, the largest structure in history at the time, measured 1,880 by 464 feet, enclosing 21½ acres. It housed exhibits of manufacturing, mining, metallurgy, education, and science. Machinery Hall was the second largest building with electric arc lights. They made most buildings of staff over lath on metal frames, which they destroyed after the exhibition.
- **Temporary hotels** housed all visitors, and a purpose-built hospital managed the health of attendees during a heatwave.

Despite the challenges, the exhibition was a resounding success. It demonstrated America's industrial and cultural prowess to the world and inspired the construction of new museums to house its exhibits, including contributions to the Smithsonian Institution.

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UNITED STATES OF AMERICA

Series A

$1000. $1000.

THE NEW YORK CENTRAL RAILROAD COMPANY.

Nº M1267 Nº M1267

Refunding and Improvement Mortgage Bond.

Four and One-Half Per Cent. Due October 1, 2013.

The New York Central Railroad Company (hereinafter called the Railroad Company), a corporation of the State of New York, and other states, for value received, hereby promises to pay to TWEEDE KANTOOR VAN HET ADMINISTRATIEKANTOOR HUBRECHT, VAN HARENCARSPEL & VAS VISSER, N.V. - AMSTERDAM, HOLLAND or registered assigns, on the first day of October, 2013, at the office or agency of the Railroad Company in the Borough of Manhattan, City of New York, State of New York, the sum of

One Thousand Dollars,

in gold coin of the United States of America of or equal to the standard of weight and fineness as it existed on the first day of October, 1913, and to pay interest thereon at the rate of four and one-half per cent per annum from the first day of April, 1914, such interest to be payable to the registered holder hereof at such office or agency in like gold coin, semi-annually, on the first day of April and the first day of October in each year until the payment of said principal sum. This bond is one of a duly authorized issue of Refunding and Improvement Mortgage Bonds (coupon and registered) of the Railroad Company issued and to be issued under and pursuant to and all equally secured by an indenture of mortgage or deed of trust dated October 1, 1913, duly executed by The New York Central and Hudson River Railroad Company (and assumed by the Railroad Company, its corporate successor, by a supplement thereto dated June 15, 1915) to Guaranty Trust Company of New York, a corporation of the State of New York, as Trustee, to which indenture and any and all supplements thereto reference is hereby made for a description of the railroads, properties and franchises mortgaged and conveyed or assigned to the Trustee thereunder, the nature and extent of the security, the rights of the holders of said bonds under the same and the terms and conditions upon which said bonds are issued and secured. The Railroad Company hereby reserves the right to redeem, before maturity, all the bonds of Series A (of which this is one) as an entirety on the first day of April or October in any year at one hundred and ten per cent of the par value thereof and the interest then accrued thereon from the last matured interest installment in the manner and upon the conditions and publication of notice of redemption provided in said indenture. (Any time the authorized issue of bonds under said indenture is limited to an amount which, together with all then outstanding prior debt of the Railroad Company or of a successor corporation (as such prior debt is defined in the indenture aforesaid) after deducting therefrom the bonds then reserved under the provisions of said indenture to retire prior debt at or before maturity, shall be equal to three times the then outstanding capital stock of the Railroad Company or of a successor corporation. In case of certain defaults specified in said indenture, the principal of all such bonds may be declared and may become due and payable in the manner and with the effect provided in said indenture. This bond is transferable only in the manner prescribed in said indenture on the books of the Railroad Company at its office or agency in the Borough of Manhattan, City of New York, upon surrender and cancellation of this bond, and upon any such transfer a new registered bond without coupons of the same series will be issued to the transferee, in exchange therefor. This bond also, in the manner prescribed in said indenture, is exchangeable for coupon bonds of the same series for the same aggregate principal amount and bearing all unmatured coupons. Any such coupon bond, bearing all unmatured coupons, in like manner, may in turn be exchanged for a registered bond or bonds without coupons of the same series for the same aggregate principal amount. For such transfer or exchange a charge may be made as provided in said indenture. No recourse shall be had for the payment of the principal of or the interest upon this bond, or for any claim based hereon, or otherwise in respect hereof or of said indenture under which this bond is issued, against any incorporator, stockholder, officer or director, past, present or future, of the Railroad Company or of any successor corporation, whether by virtue of any constitution, statute or rule of law or by the enforcement of any assessment or penalty or otherwise, all such liability being, by the acceptance hereof and as part of the consideration of the issue hereof, expressly released, as provided in said indenture. This bond shall not be entitled to any security or benefit under said indenture, and shall not become valid or obligatory for any purpose, until it shall have been authenticated by the execution of the certificate hereon endorsed, by the Trustee under said indenture.

In Witness Whereof the Railroad Company has caused this bond to be signed by its President or a Vice-President and its corporate seal to be hereunto affixed and attested by its Secretary or by an Assistant Secretary. Dated as of the first day of October, nineteen hundred and thirteen.

The New York Central Railroad Company.

Attest: H. A. Brogan by F. J. Jerome

ASSISTANT SECRETARY. VICE-PRESIDENT.

AMERICAN BANK NOTE COMPANY.

United States

NEW YORK CENTRAL RAILROAD COMPANY, NEW YORK, 1954 #1918

New York Central Railroad
The New York Central Railroad (NYC) was a vital part of America's transportation history, operating across New England and the Great Lakes region. Officially established in 1853, it emerged from a merger of various railroads running from Albany to Buffalo, New York, including the historic Mohawk and Hudson Railroad, chartered in 1826.

The NYC benefited from its strategic location near waterways like the Erie Canal and the Great Lakes, which allowed it to avoid steep hills and made for efficient freight and passenger transportation.

1918 NY Central, trackage rights in purple

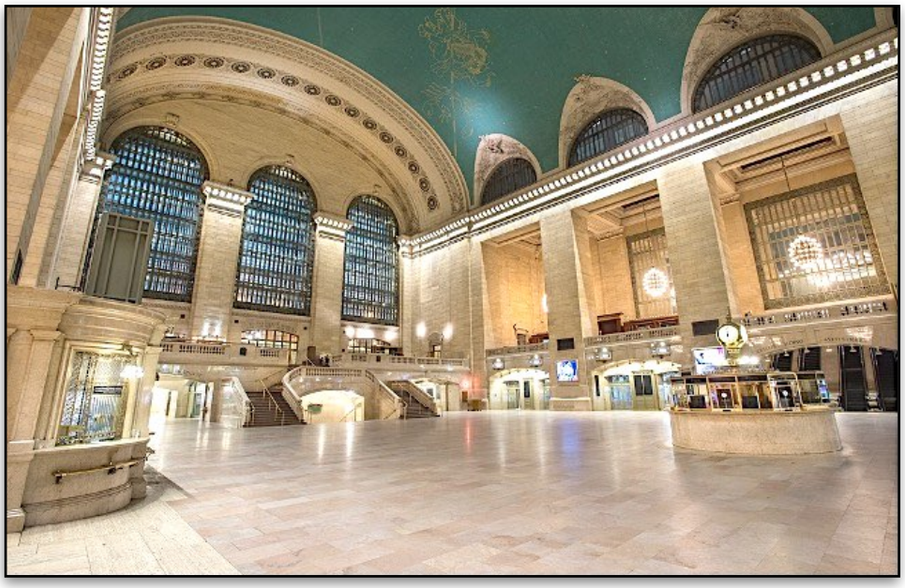
A Complex Merger History
Before its formation, more than 22 smaller railroads merged or were absorbed, creating a confusing lineage. Erastus Corning, an industrialist from Albany, was instrumental in unifying these local railroads into the New York Central. Achieving this consolidation required the agreement of numerous stakeholders and approval from the New York State Legislature.

After its initial formation, the NYC expanded further, acquiring five more railroads between 1853 and 1867. In 1864, Cornelius "Commodore" Vanderbilt, one of America's wealthiest and most influential businessmen, took control of the Hudson River Railroad, which reached New York City in 1851. By 1867, Vanderbilt acquired the NYC and merged it with the Hudson River Railroad to form the New York Central and Hudson River Railroad (NYC&HR). This expanded network also included the New York and Harlem Railroad, Lake Shore and Michigan Southern, Canada Southern, and Michigan Central.

People like Vanderbilt and Gould probably knew the track mileage, lines, railroad stops, freight and passenger figures of every railroad they owned or aspired to own — and many other details besides

Vanderbilt's Vision
Vanderbilt's leadership brought major advancements. He oversaw the construction of Grand Central Depot in 1871, the predecessor to today's Grand Central Terminal. By 1873, the railroad offered direct service from New York City to Chicago, significantly enhancing cross-country travel and commerce.

After Vanderbilt's death in 1877, his legacy continued. The NYC&HR acquired additional lines, including the New York West Shore and Buffalo Railroad in 1885 and the Pittsburgh and Lake Erie Railroad in 1887. By 1914, more subsidiaries merged into what became the modern New York Central Railroad.



Beaux-Arts interior of Grand Central Station in 2015, empty during a blizzard

Vanderbilt left $100 million (the second most wealthy American in history), almost all to his sons and grandsons. He left a pittance to his wife and daughters.

The Twentieth Century Limited
The NYC became famous for its luxury trains, especially the *Twentieth Century Limited*, which ran from Grand Central Terminal to Chicago from 1902 to 1967. Known for its first-class service, it completed the 960-mile journey in just 16 hours, averaging 60 mph—a remarkable feat for its time.

The Stock Certificate
The New York Central Railroad's stock certificate is a masterpiece of American engraving, created by the American Bank Note Company (ABNCo). It features intricate depictions of the upper and lower levels of the Grand Central Terminal. The level of artistry and craftsmanship required for such detailed engravings reflects the skill and dedication of the period's artisans.

Twentieth Century Limited train 1938, Grand Central to Chicago in 16 hours!

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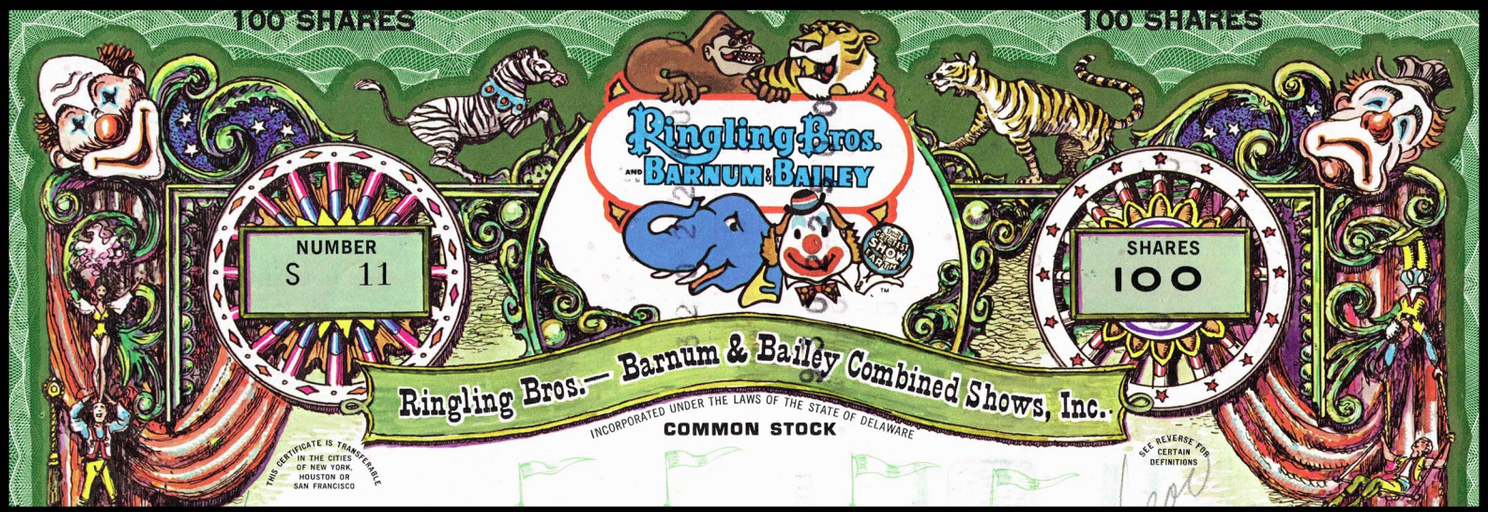
Beaux-Arts exterior of Grand Central Station in 2015

100 SHARES
100 SHARES
Ringling Bros. AND Barnum & Bailey
NUMBER
S 11
SHARES
100
Ringling Bros.— Barnum & Bailey Combined Shows, Inc.
INCORPORATED UNDER THE LAWS OF THE STATE OF DELAWARE
COMMON STOCK
THIS CERTIFICATE IS TRANSFERABLE IN THE CITIES OF NEW YORK, HOUSTON OR SAN FRANCISCO
SEE REVERSE FOR CERTAIN DEFINITIONS
THIS CERTIFIES THAT
SUTRO & CO.
is the record holder of
ONE HUNDRED
FULL-PAID AND NON-ASSESSABLE SHARES, PAR VALUE 50¢ PER SHARE, OF THE COMMON STOCK OF
RINGLING BROS.-BARNUM & BAILEY COMBINED SHOWS, INC., transferable on the share register of the corporation in person or by duly authorized attorney upon surrender of this certificate properly endorsed.
This certificate is not valid unless countersigned by the Transfer Agent and registered by the Registrar.
Witness the facsimile signatures of its duly authorized officers.
Dated: JUN 12 1969
Authorized Officer
Secretary
President
Authorized Officer
Registered: CROCKER-CITIZENS NATIONAL BANK, (San Francisco) Registrar
By
Countersigned: WELLS FARGO BANK, NATIONAL ASSOCIATION, (San Francisco) Transfer Agent
By
THE GREATEST SHOW ON EARTH®
AMERICAN BANK NOTE COMPANY.
© 1966, 1969 RINGLING BROS.—BARNUM & BAILEY COMBINED SHOWS, INC.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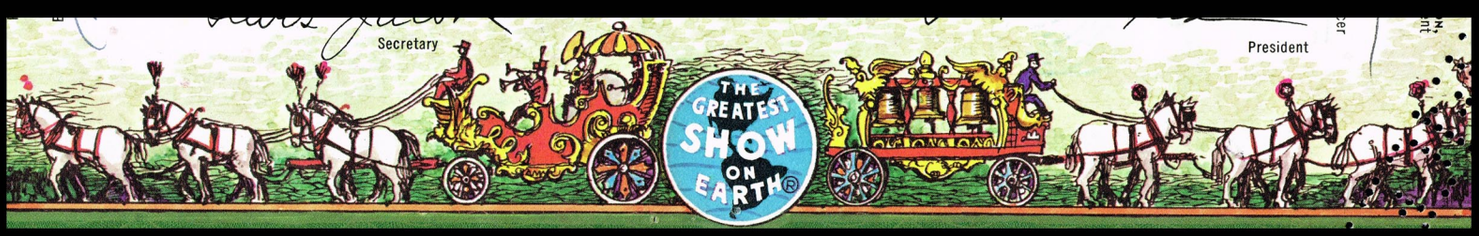

Secretary
President
THE GREATEST SHOW ON EARTH®

United States

RINGLING BROS./BARNUM & BAILEY COMBINED SHOWS, Inc., SAN FRANCISCO, 1969 #2089

PT Barnum
PT Barnum (1810 to 1891) was a showman extraordinaire, promoter, impresario, philanthropist, publisher and irrepressible entrepreneur — the nineteenth-century equivalent of Walt Disney.

The quotes attributed to PT Barnum need explanation. He never said, "A sucker is born every minute". The banker David Hannum said this, talking about Barnum's replica of the Cardiff Giant, one of his hoaxes. However, one true quote is: "I don't care much what the newspapers say about me as long as they … say something." This reflects the Hollywood quote, "Any publicity is good publicity."

THE GREATEST
Natural & National
CURIOSITY
IN THE WORLD.
JOICE HETH
Nurse to Gen. GEORGE WASHINGTON, (the Father of our Country,)
WILL BE SEEN AT
Barnum's Hotel, Bridgeport,
On FRIDAY, and SATURDAY, the 11th. & 12th days of December, DAY and EVENING.
JOICE HETH is unquestionably the most astonishing and interesting curiosity in the World! She was the slave of Augustine Washington, (the father of Gen. Washington,) and was the first person who put clothes on the interesting infant, who, in after days, led our heroic fathers on to glory, to victory, and freedom. To use her own language when speaking of the illustrious Father of his Country, "she reared him." JOICE HETH was born in the year 1674, and has, consequently, now arrived at the astonishing
AGE OF 161 YEARS.
She Weighs but FORTY-SIX POUNDS, and yet is very cheerful and interesting. She retains her faculties in an unparalleled degree, converses freely, sings numerous hymns, relates many interesting anecdotes of the boy Washington, and often laughs heartily at her awkwardness, or those of the spectators. Her ken is perfectly good, and her appearance very neat. She is a baptist and takes great pleasure in conversing with serious and religious persons. The appearance of this marvellous relic of antiquity strikes the beholder with astonishment, and convinces him that he can see nothing on the oldest specimen of mortality they ever before beheld. Original, authentic, and indisputable proofs of the above statements can be produced. Joice Heth has but very recently left the South, and will give every attention to the ladies who visit this relic of by-gone ages.
She has been visited in Philadelphia, New-York, Boston, &c., by more than TWENTY THOUSAND Ladies and Gentlemen, within the last three months.
Hours of Exhibition, from 9 A.M. to 1 P. M. and from 3 to 5, and 6½ to 10 P.M.
ADMITTANCE 25 Cents, CHILDREN HALF-PRICE.
Printed by J. BOOTH & SON, 142, Fulton-S. N. Y.
Remains Monday the 14th

Joyce Heth, aged 161!

Barnum bought a blind black lady, Joyce Heth, whom he promoted as Washington's nursemaid, aged 161! In 1841, he bought a museum where he exhibited "Feejee", a South Seas Mermaid (the top half of a monkey sewn to the bottom half of a fish)!

He embraced a child dwarf named Charles Stratton, whom he promoted as Tom Thumb. Stratton became very wealthy from this. Barnum then followed with the conjoined twins, Chang and Eng; Jenny Lind, the Swedish Nightingale; and Jumbo, the enormous elephant.

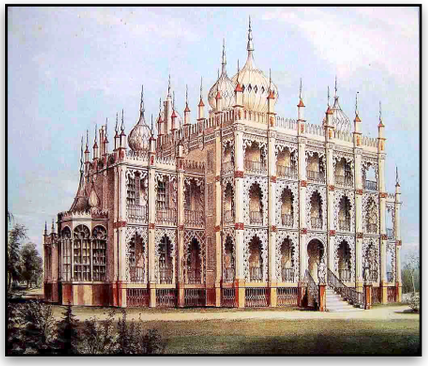
Feejee, the mermaid

Barnum's success led to great wealth. He converted from Democrat to Republican (then anti-slavery) to oppose slavery, and served four terms as a State Representative for Fairfield County.

He bought land, laying out streets lined with trees, and bought an 8-acre park for Bridgeport. As its mayor in 1875, he introduced gas street lighting, enforced liquor and prostitution laws, and improved the water supply. He also founded Bridgeport Hospital.

Chang and Eng

He built four houses in Bridgeport. Iranistan was the first, inspired by King George VI's Royal Pavilion in Brighton, UK.



Iranistan, Barnum's Bridgeport house

Barnum and Bailey
In 1870, Barnum established a traveling museum with "freaks". In 1881, he merged with James Bailey to form Barnum and Bailey, the first three-ring circus, i.e., three display areas for the audience to watch — the world's largest circus. The next year, Barnum bought Jumbo the elephant. Their circus became the first to move their show with their own train. Back then, there was no other infrastructure to travel the US to bring the show to everyone, except horse or oxen and cart.

Ringling Brothers
The five Ringing Brothers bought Barnum and Bailey in 1907, running it as a separate circus. By 1919, only two brothers remained, so they merged back with Barnum and Bailey, which they billed as *The Greatest Show on Earth.*

John Ringling moved headquarters to Sarasota, Florida in 1927, now the site of the Ringling Museum of Art (see right). This included a Circus Museum, Glass Pavilion, Asian Art Center, and his Mediterranean revival mansion, Ca' d'Zan, reminiscent of Iranistan (shown top right).

The Hartford Fire
In 1944, during an afternoon performance before 6,000-8,000 under the big top in Hartford, Connecticut, the tent caught fire. A common way to waterproof the canvas back then was paraffin wax dissolved in gasoline. They covered the dirt floor with wood shavings and hay. The fire killed 167, and injured 700.

The City of Hartford charged five employees of involuntary manslaughter. Ringling accepted responsibility and paid almost $5 million to the 600 victims and families who filed claims. It took them years to pay off.

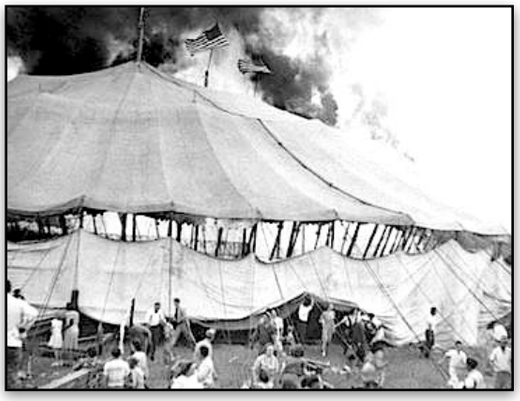
Jenny Lind

Six years later, Robert Segee from Ohio said he had worked for the circus and set the fire. He said he saw an American Indian riding on a flaming horse, who told him to do it. They imprisoned Robert for 44 years.

They did not allow Connecticut to question him. He later denied the story and to this day, many doubt he did it.

Ringling's Ca' d'Zan, Sarasota, Florida

Aerial view Ringling Art Museum, Sarasota, Florida



1944 Hartford, CT, Ringling Big Top Fire

Irvin Feld Ownership
After 1957, they stopped using their portable "big top" tents and used permanent venues like sports stadiums and arenas. In 1967, Irvin Feld bought them out, sold it to Mattel toys in 1971, then bought it back from them in 1981. The certificate signed by Irvin Feld in 1969 shows many circus animals. In 2017, they closed after animal rights protests and high operating costs. But in 2023, Feld Entertainment reopened — without animals!

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3

FAMOUS SIGNATURES & PERSONALITIES

Accession #	Country	Security Title	Person's Dates	FAMOUS SIGNATURES Description
1905	US	North American Land Co	1734-1806	Signed by **Robert Morris**, whose finances helped support the American Revolution
1873	US	Girard Trust	1750-1831	Signature of **Stephen Girard**
2042	US	Philadelphia and Lancaster Turnpike	1752-1804	Earliest known vignette on US stock certificate, printed on vellum. **William Bingham** signed
1983	US	John Jacob Astor signature	1763-1848	**John Jacob Astor** Signature and engraving
2247	Russia/ France	Russian Annuity	1777-1836	**Nathan Rothschild** Trilingual annuity to Russia
2077	Scotland	Poyaisian Bond	1786-1845	**Gregor MacGregor** one of the biggest swindlers of all time
2000 & 1969	US	Cornelius Vanderbilt	1794-1877	Canada Southern Railway Co. **Cornelius Vanderbilt II** signature. Also NY & Harlem 1906 vignette #1969 Also ABNCo vignette signed. Also #2025 Chicago Great western has his vignette Grandson appears on Lake Michigan & Southern RR #1931
1896	US	American Express Co	1805-1878 1818-1881	Signatures of **Henry Wells** and **William Fargo**
2303	US	Northern Pacific RR Co	1821-1905	**Jay Cooke** Signature Northern Pacific RR Co
2431	US	Missouri, Kansas, and Texas Railroad Company	1836-1892	**Jay Gould** Signature Missouri Kansas & Texas Railway Co
1904	US	Pullman's Palace	1837-1921	Famous for Pullman's Strike, **Horace Porter** signature as VP Also **Marshal Field**'s signature, who founded the Chicago Department store and was benefactor or the Field Museum in Chicago
1903	US	NY Central & Hudson RR Co	1837-1913	**JP Morgan** signature on NY Central & Hudson River RR Co
2095	US	Edison Portland cement Co	1847-1931	Issued to and signed by **Thomas A Edison**
2047	US	US Steel	1835-1919	US Steel Certificate made out to **Andrew Carnegie** when JP Morgan bought him out
1906	US	Standard Oil	1839-1937	Signature of **John D Rockefeller** first billionaire. Also Flagler signature

Thoughts on how to rank wealth in times past

How to rank wealth

Before the industrial revolution, emperors had ultimate control. Did they own everything like people do today? Should we compare their wealth with modern industrialist's wealth? How could you value all of Genghis Khan's land in 1200s? The further you go back, the more difficult it is to convert to modern values with so many compounded years of inflation.

If we construct a list of the wealthiest people, should we include inherited wealth?

As a student of financial history, I am primarily interested in who generated the wealth, not how 15 grandchildren each dissipated it! But some descendants increased their inheritance. William Henry Vanderbilt did so after inheriting from Cornelius.

One of the reasons we choose the industrial revolution to start listing wealth is that before this, most people were agrarian, and seldom used money. Most of their needs came from the farm. But, there is no getting around it — people just seem much wealthier in modern times. Part of the reason is that in modern times, productivity has vastly increased.

Here is one list of wealthy people in history, with some modern estimates of their wealth. But how do you compare them?

1. Caesar $4.6 trillion
2. King Solomon $2.2 trillion
3. Genghis Khan $1 trillion
4. Mansa Musa $415 billion
5. Jakob Fugger $277 billion
6. William the Conqueror $228 billion
7. Alan Rufus $195 billion
8. Crassus $170 billion
9. Basil II of Byzantium $169 billion
10. Cosomo de Medici $129 billion

Many of these characters had power over many people and lived in comparative luxury. But none of them had access to instant running hot water, air conditioning, instantaneous access to information, movies and music. None of them could fly across the globe in a day. None of them had access to modern medicine, public health, dental care, and improved health in old age.

I would argue that the middle class American of today is more fortunate than the wealthiest characters of history. That is, unless you insert the power factor. But if all you want is power, become a politician!

This chapter deals with famous signatures and personalities. In chapter seven I will deal in further detail about how to measure wealth in the industrial age.

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This chapter shows signatures of famous and wealthy businessmen. The most famous, of course, would be George Washington, a consummate land speculator. But his signature on anything, even a blank piece of paper, costs abut $10,000!

Nevertheless, there are a number of famous businessmen who signed stock certificates as buyers, or officials. And, although these certificates may be mundane, it is the signature, not the certificate, that is important.

Incidentally, George Washington excelled at land speculation and surveying. When he died in 1799, he left an estate of $780,000, equivalent to 0.19% of GDP back then. This is higher than Henry Ford or Sam Walton's estate as a percentage of US GDP.

Elias Hasket Derby, who died the same year, was the richest man of the decade. His estate was valued at only a little more — $1,063,799, making him America's first millionaire. His money came from the shipping trade.

List of the wealthiest Americans by half decade, starting in 1770.

- 1770 **Peter Manigault** (Plantation slave owner)
- 1775 **Robert Morris** (merchant)
- 1780 **William Bingham** (merchant)
- 1785 **Benjamin Franklin** (printing, inventions and real estate)
- 1790 **John Hancock** (merchant)
- 1795 **Elias Hasket Derby** (privateer)
- 1800 **Thomas Willing** (merchant)
- 1805-1830 **Stephen Girard** (banker)
- 1835 **Stephen Van Rensselaer** (landowner)
- 1840-1845 **John Jacob Astor** (furs and real estate)
- 1850-1875 **Cornelius Vanderbilt** (railroads)
- 1880-1885 **William Henry Vanderbilt** (railroads)
- 1890-1895 & 1910-1915 **J. D. Rockefeller** (oil)
- 1900-1905 **Andrew Carnegie** (steel)
- 1920-1925 & 1940-1945 **Henry Ford** (autos)
- 1930-1935 **Andrew Mellon** (banking)
- 1950 **Haroldson Lafayette Hunt** (oil)
- 1955 **J Paul Getty** (oil)
- 1960-1975 **Howard Hughes** (aerospace)
- 1980 **Daniel Ludwig** (shipping)
- 1985 **Sam Walton** (supermarkets)
- 1990 **John Kluge** (television)
- 1995-2015 **Bill Gates** (software)
- 2020 **Jeff Bezos** (e-commerce)

List of certificates in this chapter

- **Robert Morris** (1734-1806) was the benefactor of Washington's Continental Army. He owned the North American Land Company.
- **Stephen Girard** (1750-1831), a French-born orphan, became an American banker. By guaranteeing $1 million during the War of 1812, he saved the US government from bankruptcy.
- **William Bingham** (1752-1804) was a delegate to the Continental Congress and a US Senator. People considered him the wealthiest man in America in 1780. He started the Philadelphia and Lancaster Turnpike Co.
- **John Jacob Astor** (1763-1848) started as a fur entrepreneur. He got out at just the right time and turned to Manhattan real estate also at just the right time.
- **Nathan Rothschild** (1777-1836), founder of a London Banking House, was one of five brothers who successfully networked banks all over Europe. He signed a Russian bond annuity traded for over 160 years.
- **Gregor MacGregor** (1786-1845), a mega-swindler, who ran off with almost five times the money Bernie Madoff managed to steal. His major scheme was Poyasia, a land that never was.
- **Cornelius Vanderbilt** (1794-1877), whose signature and vignette appear on stock certificates. His grandson's vignette appears on a Lake Shore and Michigan Southern Railway Company certificate. He was probably the second richest American after J. D. Rockefeller.
- **Henry Wells** (1805-1878), and **William Fargo** (1818-1881) started the American Express Company.
- **Jay Cooke** (1821-1905), masterfully managed the sale of American Civil War bonds to millions of Union buyers. He went bankrupt, but managed to repay his debts. Congress abolished debtor's prisons in 1833.
- **Jay Gould** (1836-1892), was one of the most rapacious of all business operatives.
- **Horace Porter** (1837-1921) was a famous Civil War colonel and diplomat, who became personal secretary to US Grant and William Sherman. He was also the VP of the Pullman Palace Car Company and the US Ambassador to France. **Marshall Field** (1834-1906) owned the certificate. He founded a famous Chicago Department store, donating seed money for Chicago's Field Museum.
- **J. P. Morgan** (1837-1913), the financier who saved America during the gold crisis. His signature appears on a railroad stock.
- **Thomas Alva Edison** (1847-1931), inventor extraordinaire, signed an Edison Cement stock certificate.
- **Andrew Carnegie** (1835-1919) was a steel manufacturer, particularly of rails. He was predatory during his business life, but, once he sold out to J. P. Morgan, he spent decades giving away all his money.
- **John Rockefeller** (1839-1937) of Standard Oil, became the first billionaire. He was by far and away the richest American of all time as a percent of US GDP.

No. 19 — representing 10 Shares from 181 to 190.

This is to Certify

that James Greenleaf is entitled to ten Shares in the entire Property of the NORTH AMERICAN LAND COMPANY, the Dividend whereof shall not be less than Six Dollars, on each Share Annually, conformable to Articles of Agreement Duly Executed, dated at PHILADELPHIA the twentieth day of February 1795 Transferable only at the Company's Office in that CITY, by the Owner in Person, or by his Executor, Administrator, Attorney, or Legal Representative. Signed in the Presence, and by Order of the Board of Managers, at Philadelphia, this tenth day of March One thousand seven hundred and ninety five

James Marshall Secretary Robt Morris President.

North American Land Company

Robert Morris 1734-1806, shipping and banking #1905

Robert Morris by Charles Wilson Peale

Robert Morris from Black Back Silver Certificate, Series of 1880, Fr 289 #1465

Robert Morris: Financier of the American Revolution

Robert Morris played a crucial role in the founding of the United States as the principal financier of the American Revolution. Born in Liverpool, England, in 1734, Morris moved to Maryland at age 13 to join his father, who worked in the tobacco trade. After apprenticing with the Philadelphia shipping and banking firm Charles Willings, Morris demonstrated remarkable business acumen and became a partner at just 18, eventually amassing significant wealth.

Early Political Involvement

By 1765, Morris, then 31, joined a committee of merchants opposing the Stamp Act. Despite his involvement in the early economy, which included ventures like slave trading, Morris later supported taxing slavery and became a Pennsylvania delegate to the Second Continental Congress.

My spell checker says slave trading should be called secondary, subordinate or dependent trading! Somehow, none of these words capture the true evil of slavery. Later, Morris taxed slaves even though he owned some.

As a member of Congress, he signed the Declaration of Independence and used his extensive trading networks to aid the war effort. Notably, Morris sold his best ship to the Continental Navy, where it became the *Alfred*, and coordinated arms imports from France to support the colonies.

Financing the Revolution

During the Revolution, Morris used his personal wealth to fund the army, including a critical $10,000 payment to Washington's troops. He risked and lost 150 of his own ships but offset these losses by capturing British vessels through privateering. Despite his contributions, accusations of war profiteering, notably from Thomas Paine, tarnished his reputation.

In 1781, Morris was appointed Superintendent of Finance and the Navy. Faced with a Congress in debt for $25 million, he founded the Bank of North America to stabilize the nation's finances. He insisted on competitive bidding, tight accounting, and state support.

That same year, Morris personally spent $1.5 million (equivalent to over $1 billion today) to fund Washington's march to Yorktown, securing a decisive victory in the war. His extraordinary efforts earned him the title "Financier of the American Revolution."

Contributions to American Economic Policy

Morris laid the groundwork for America's financial system, proposing a national economic plan later echoed by Alexander Hamilton. In 1782, Morris and his assistant Gouverneur Morris (he was not a governor, Gouverneur was his first name) proposed a decimal currency system to Congress.

The Apotheosis of Washington, is a large fresco by Brumidi in 1865 on the dome of the US Capitol rotunda. It shows Robert Morris receiving bag of gold from Mercury, god of commerce.

The next year, Robert submitted the famous decimal Nova Constellatio pattern coins as a sample to Congress. From 1783 to 1785, together with Constable and Rucker, they started a private coinage venture, striking Nova Constellatio coppers, designed after the patterns. Struck in Birmingham, UK, they shipped them to New York for sale as small change in the US.

Political and Personal Legacy

Morris was a delegate to the 1787 Constitutional Convention and an advocate for abolishing slavery. He nominated George Washington as the first President and declined the role of Secretary of the Treasury, recommending Hamilton instead. As a US Senator for six years, Morris championed Federalist policies and temporarily relocated the government to Philadelphia, offering his home for Washington's use.

Hamilton's famous report on the public credit in 1789 was just a reworking of Morris' *On Public Credit*, a document submitted to the Continental Congress in 1781.

Decline and "Morris' Folly"

After 1795, Morris invested in large-scale ventures, including canal companies, a steam engine company, and the first American iron rolling mill. He co-founded the North American Company, the nation's first real estate investment trust (REIT), which controlled six million acres.

In 1794, Morris began constructing an elaborate Philadelphia mansion designed by Pierre L'Enfant. Dubbed "Morris' Folly," the unfinished project symbolized his financial downfall. But Morris' company collapsed. The western land market did not boom as quickly as Morris expected and he was over-leveraged. Neither was he able to sell his land in Europe.

Morris' Folly

When he and his partners, James Greenleaf and John Nicholson, declared insolvency, the government confined him to Philadelphia's Prune Street debtors' apartment adjacent to the Walnut Street Prison from 1798 to 1801. Greenleaf spent a year in prison, and Nicholson died in prison. Upon release, Morris was a broken man. He lived five more years, supported by his devoted wife.

Robert Morris's legacy as a financier and founding father is profound, despite his later struggles. His financial acumen and personal sacrifices were instrumental in securing American independence and shaping the nation's early economic foundations.

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COMMISSIONERS OF THE GIRARD ESTATES.

No. 662

Philadelphia, Nov. 11 1837.

117 Dollars 45 Cents.

You are requested to draw your Warrant on the **TREASURER OF THE GIRARD TRUST,** in favour of James Caldwell

for One Hundred & Seventeen Dollars 45 Cents,

being the amount of claim for

By order of the **Commissioners of the Girard Estates,** at a meeting held on the 11 day of Novr. 1837.

To John Swift Esq.

Mayor of the City.

Lawrence Lewis President.

Morgan Ashl Secretary.

Agreeably to the foregoing Requisition of the **Commissioners of the Girard Estates,** Pay James Caldwell or order,

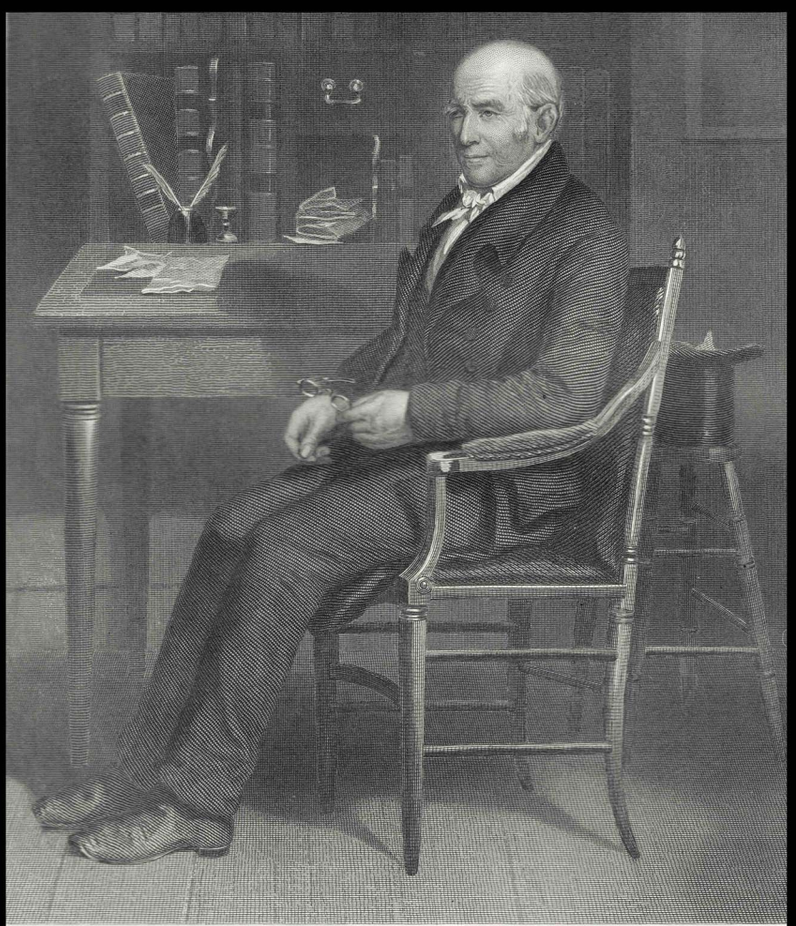
One Hundred & Seventeen Dollars 45 Cents

and charge the same to Appr. for Entensey Wharves

Mr. Swift Mayor.

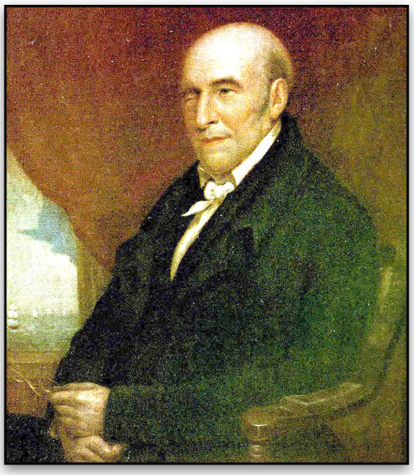
To Benj: Jones Jr. Esq.

Treasurer of the Girard Trust.



Stephn Girard

Stephen Girard 1750-1831, shipping and banking #1873



Posthumous portrait of Girard

Stephen Girard (1750-1831) was born in Bordeaux, France, to a sea captain. At age eight, he lost sight in his right eye. Two years later, as an orphan, he traveled to New York.

By 23, Girard had become a licensed sea captain and began trading. His brother John left him an enslaved woman who remained with Girard until his death.

At 28, Girard married 18-year-old Philadelphian Mary Lum. After eight years, she developed violent rages and uncontrolled outbursts. Without modern psychiatry or psychopharmacology, Girard waited five years to see if she would improve. But she did not, so he committed her to an insanity ward, where she lived for another 15 years.

By 40, Girard owned a small fleet of trading vessels and joined the China trade from Canton, which included opium.

During the 1793 yellow fever outbreak in Philadelphia, most wealthy residents fled. Girard, however, stayed to care for the sick. He converted a mansion outside the city into a hospital and recruited volunteer nurses. Presumably immune from a previous infection, Girard remained unaware of this concept, as immunity to viral diseases was not understood at the time. Yellow fever mortality remains high at 20-60%, depending on the outbreak.

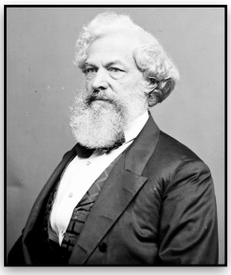
When the First Bank of the United States' charter expired in 1811, Girard bought it. Pennsylvania prohibited unchartered banks owned by associations, but could not touch him as an individual.

During the War of 1812, Girard's bank provided the federal government with a million dollars in credit, placing all his assets at their disposal. This funding was crucial for prosecuting the war.

Girard became the largest stockholder and director of the Second Bank of the United States, in addition to owning his own bank. His reputation was impeccable. After his death, local merchants renamed his Bank of North America to Girard's Bank, capitalizing on his incorruptible reputation.

The sequence of federal banks was:

- First Bank of North America, chartered in 1781. It opened in 1782, on 307 Chestnut St., Philadelphia. Pennsylvania objected and reincorporated it as a state bank.
- The government chartered the First Bank of the United States (BUS) in 1791. It started in 1797 in Carpenters's Hall, Philadelphia. Another building on South Third Street opened later.
- In 1811, first BUS charter expired, Girard bought up the bank. War of 1812 broke out. No federal bank followed.
- The government chartered the 2nd Bank of the United States in 1816, on Chestnut Street, Philadelphia.



Thomas Walter

At 80, Girard was struck by a wagon while crossing the street, damaging his remaining eye. He recovered and lived another year as America's wealthiest man, worth $7.5 million. When he died in 1831, his wealth represented 0.75% of the US GDP, comparable to Elon Musk's wealth today as a percentage of GDP.

Girard College

Girard's will reflected his atheist beliefs and philanthropic nature. As a former orphan, his greatest legacy was a $6 million bequest to establish a boarding school for poor white orphan boys, primarily children of coal miners.

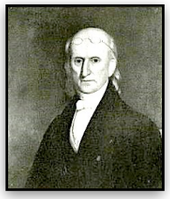
Construction of the expensive college began two years after Girard's death and took 16 years to complete. The school's high cost (equivalent to $6 billion today) may be attributed to the establishment of permanent full scholarships for all students, covering education, room, and board.

Founder's Hall in Girard College

The 43-acre campus in Philadelphia featured high-quality buildings, as Girard specified in his will. Thomas Walter, a founder of the American Institute of Architects, won the architectural competition designing Founder's Hall.

Nicholas Biddle

Nicholas Biddle, President of the Second Bank of the United States, chaired the building committee. Construction receipts were signed by committee President Lawrence Lewis, nephew of George Washington and executor of Washington's estate.



Lawrence Lewis

After a 14-year legal battle, the private boarding school finally accepted African American students in 1968. They admitted girls too 16 years later. Today, all students at Girard College receive full scholarships.

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First Bank of United States 1791-1811, bought by Girard, which later became Girard's Bank

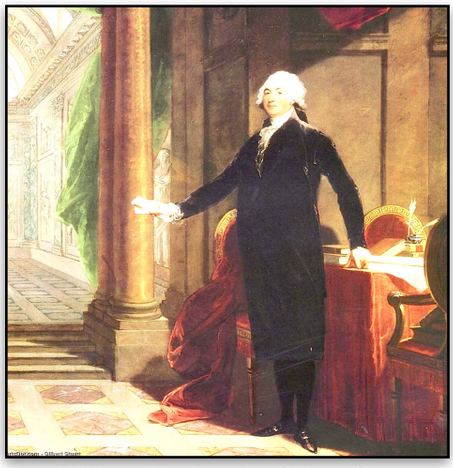
Philadelphia March 16th 1795

BE IT HEREBY CERTIFIED, by the President, Managers, and Company of the Philadelphia and Lancaster Turnpike Road, that

No 235 William Sansom of the City of Philadelphia is entitled to one share of Stock, in the said Company, numbered two hundred and thirty five transferrable in the Presence of the President or Treasurer, by the said William Sansom or his Attorney: Agreeably to an Act of the General Assembly of the Commonwealth of Pennsylvania, passed the Tenth Day of April, in the Year of our Lord One thousand Seven Hundred and Ninety two, and the Charter of said Company Sealed with the common Seal of the said Company.

Treasurer. Wm Bingham President.

William Bingham 1752-1804, privateer & trader #2042



William Bingham by Gilbert Stuart

William Bingham
William Bingham, a Philadelphia statesman and entrepreneur, served as delegate to the Continental Congress then as a US Senator, where he became President pro tempore. By 1780, people considered him the richest man in America. He co-founded the Bank of North America, and donated to the College and Academy of Philadelphia (later called UPenn).

His family hosted many European aristocrats, becoming the center of high society in Philadelphia. He married Anne Willing, the daughter of Thomas Willing, the President of the First Bank of the United States. Both his daughters married into the Baring family (prominent British bankers). His son moved to Montreal, Paris, then England.

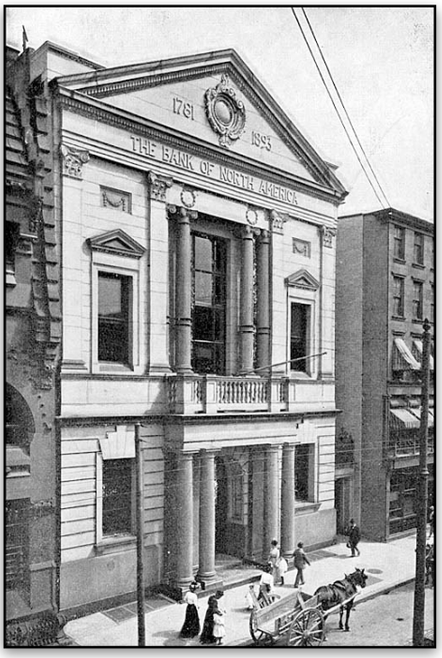
During the American Revolution, the Committee of Secret Correspondence sent him to Martinique to communicate with Silas Deane (the committee agent in France). As a privateer in 1776, he captured British ships, bringing munitions and guns back to America. This, and trading, made him the richest man in America in the 1780s.

Soon he bought land in upstate New York and two million acres in Maine. He also later helped the Barings Bank and Hope Bank broker Jefferson's Louisiana purchase.

Lancaster Philadelphia Turnpike
In 1795, he opened the Lancaster Philadelphia turnpike, the first engineered road in the US, stretching 62 miles. They later extended it to the Susquehanna River. Back then, Pennsylvania could not afford to pay for its construction, but they granted him the rights of eminent domain for the good of the Commonwealth.

His subscription offered 1,000 shares at $300 per share — only for the wealthy; a laborer's wage was then only two cents an hour! But two thousand people assembled to buy a share, so they had a lottery to award them. The shares were one of the first to trade on the New York Stock Exchange, only just founded by the Buttonwood Agreement in 1792.

They had a cost overrun of $465,000 against its projected cost of $300,000. They used a cambered road with different grades of crushed stone but no tar, following McAdam's suggestions, called macadamization. The first crushed stone and tar road (tar macadam or tarmac) was in 1902 in Nottingham, UK. The first US asphalt pavement was in Newark in 1870, though asphalt has been used for millennia for roads and waterproofing.

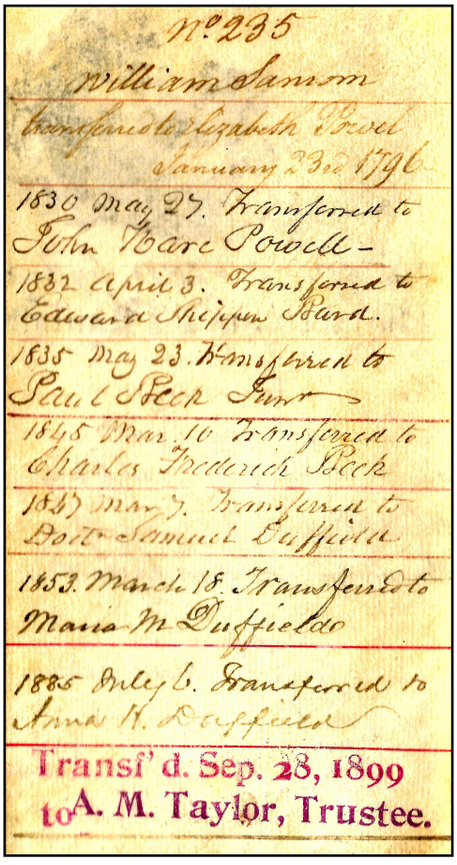


Bank of North America, chartered by Congress 1781, replaced as national bank by First Bank of US in 1791

They charged a half real toll (worth 6¼ cents) for a man and horse per 10 miles, and one real for 20 sheep or pigs per 10 miles. Wagons with narrower wheels had to pay more because they caused ruts. A toll house every five miles collected the money. In Pennsylvania reckoning, at 90 pence to the Spanish milled dollar, a half real was 5.5 pence, hence the slang *fip* (*fi'penny* piece) for a half real.

Gilbert Stuart's Lansdowne portrait of Washington

The first year in 1796, they made only $11,000 (2.3%) profit. By 1802, they made $20,000 (4.3%), and by 1815, $45,000 (9.7%). The road was a boon. By 1845, they had built 342 different turnpikes in Pennsylvania. But by then, canals and railroads cut into profits. Wagon and coach builders also lost out.



Back of Philadelphia and Lancaster Turnpike, showing 9 transfers of the security over 104 years. The first buyer, 7 months later likely sold it at a huge profit to Elizabeth Powel.

Bank of North America
Bingham wrote the bylaws of the Bank of North America which he, Robert Morris and Alexander Hamilton founded. It served as the de facto central bank of America 1782 - 1791.

But Pennsylvania objected to its privileges, and reincorporated it under state law, defeating its purpose as a national bank. The US Congress then chartered the first BUS (Bank of the United States) in 1791, which replaced the Bank of North America as a national bank.

Lansdowne Portrait of Washington
Bingham commissioned Gilbert Stuart to paint George Washington's Lansdowne portrait in 1796, so-called because he gifted it to Lord Lansdowne. He was the British Prime Minister during the last months of the Revolutionary War, and secured a final peace with America. Could this have been inspired by guilt over Bingham's accumulated wealth from privateering and capturing so many British cargoes in Martinique?

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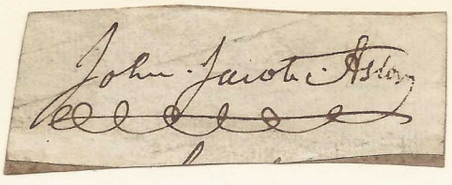
https://en.wikipedia.org/wiki/List_of_richest_Americans_in_historyhttps://en.wikipedia.org/wiki/John_Jacob_Astor

by Alonzo Chappel

John Jacob Astor

Likeness copied by permission from an original painting in the possession of the family.

Johnson, Fry & Co. Publishers. New York.



John Jacob Astor 1763-1848, furs & real estate #1983

John Jacob Astor by John Jarvis 1825

Early life
John Jacob Astor (1763–1848) was born in Waldorf, Germany. At 16, he moved to England to work in his uncle's piano factory. After four years, he immigrated to Baltimore and, like Benjamin Franklin, married his innkeeper's daughter, Sarah Todd.

Astor openly praised Sarah as an excellent businesswoman, better than most of his competitors. She bore him eight children, three of whom died in infancy and passed away in 1842, six years before his own death.

Fur Trade Beginnings
Astor originally joined his brother, a butcher in New York City. However, during his voyage to America, a chance meeting with a fur trader inspired him to enter the fur business. While working for his brother, he began buying and selling furs and eventually opened his own fur goods store in New York City.

In 1794, the Jay Treaty between England and the US allowed Native Americans to travel freely across the US-Canada border. Astor quickly partnered with Montreal's North West Company, a rival to Britain's Hudson Bay Company.

The Beaver Hat Boom
Felt hats, especially those made from beaver fur, had been popular for centuries. Beaver fur was uniquely suited for felting, as its barbed hairs created a water-resistant material. By the 1700s, European beavers were nearly extinct, making North American fur highly valuable. Beaver hats became a status symbol, akin to diamonds today. Demand peaked between 1770 and 1830.

Astor's Rise
By 1800, at age 37, Astor had become a leading figure in the fur trade, amassing a fortune of $250,000. He trained his agents to be relentless in their efforts and expanded his business by trading furs and opium in Canton, China, in exchange for tea and sandalwood.

In 1807, President Jefferson's embargo on British goods halted Astor's trade with Canada. Jefferson wanted to stop British impressing (kidnapping) US sailors. Undeterred, Astor founded the American Fur Company in 1808 and established trading posts, including Fort Astoria on the Columbia River. The War of 1812 disrupted his operations, but he rebounded by acquiring competitors after Congress restricted foreign fur traders in 1817.

Real Estate Visionary
Astor's wealth allowed him to diversify. In 1817, he bought a townhouse in New York City. By the 1830s, foreseeing the decline of the fur trade, he shifted his focus to Manhattan real estate, correctly predicting the city's northward expansion, and began buying land. Rather than building on it himself, he leased the land to developers, reaping immense profits.

By the time of his death in 1848, Astor's fortune had grown to $20 million, equivalent to 0.9% of the US GDP at the time. He used part of his wealth to establish the New York Public Library.

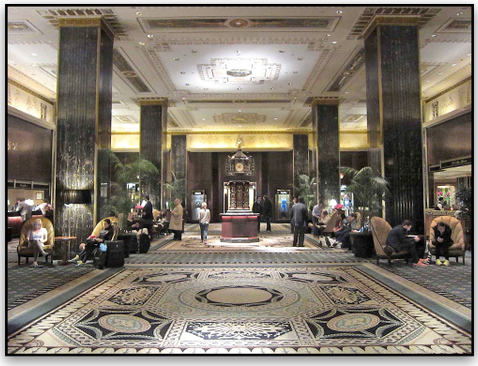
The Waldorf-Astoria Legacy
The famous Waldorf-Astoria Hotel and the Queens neighborhood of Astoria were named in Astor's honor.

The Hotel's Origins
The Waldorf-Astoria began as two rival hotels built by feuding Astor descendants. William Waldorf Astor built the Waldorf Hotel, while his cousin John Jacob Astor IV constructed the Astoria Hotel. In 1897, they merged, linked by a grand corridor called Peacock Alley. With 1,300 rooms, it was the largest hotel in the world at the time and the first to offer en-suite bathrooms and room service.

During the Great Depression, the original Waldorf-Astoria was demolished to make way for the Empire State Building. A new Waldorf-Astoria opened in 1931, becoming the world's tallest hotel at 47 stories until 1957.

The Iconic Clock
A centerpiece of the Waldorf-Astoria lobby was a stunning clock originally commissioned by Queen Victoria for the 1893 World's Columbian Exposition. John Jacob Astor IV bought it and installed it in the Waldorf Hotel.

During the Great Depression, they demolished the hotel to build the Empire State Building, the tallest building in the world from 1931 to 1972. They also built a new Waldorf-Astoria in 1931, the world's tallest hotel (47 stories) until 1957. As a coin collector, I stayed there many times at the New York International Numismatic Convention, held early every January. In 1949, Conrad Hilton bought it and changed the single hyphen to an equal sign.



Main lobby of Waldorf-Astoria 2010

The lobby was spectacular (shown above). Every time I visited, I would inspect and admire the clock.

Waldorf Astoria Clock now in Los Cabos, Mexico. Courtesy NY Historical Society

When they built the new Waldorf-Astoria in 1931, they moved it there, where it remained until 2014. The four faces showed the time in New York, Madrid, Paris, and Greenwich, UK. Below are eight medallions with portraits of Presidents, Washington, Jackson, Harrison, Lincoln, Grant, Cleveland and Queen Victoria.

In 2014, the aging Waldorf-Astoria sold to the Chinese Anbang Insurance Group for $19.5 billion, the most expensive hotel ever sold. Three years later, China detained Anbang's chairman and imprisoned him for 18 years for embezzlement. The Chinese government now owns the company.

They say they will convert their 1,400 hotel rooms to 375 large hotel rooms, and 375 condo-residencies priced at $1.8-18.5 million. Unfortunately, they moved the clock to another resort in Los Cabos in Baja California, Mexico. They also use the name Waldorf-Astoria as a sort of celebrity brand. However, rumor has it they will move the clock back to the real Waldorf-Astoria when it reopens.

However, ten years after buying the Waldorf Astoria, China has yet to finish renovations.

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Russian 5 Per Cent Loan for 1822

№ 79154

№ 24469

ROUBLES 720 1822 года. £111 Sterling

НЕПРЕРЫВНЫЙ ДОХОДЪ ПО 5 НА СТО.

Свидѣтельство о непрерывномъ доходѣ на капиталъ, внесенный въ Государственную долговую книгу Коммиссіи погашенія долговъ, состоящій въ *семи стахъ двадцати рубляхъ серебромъ*, равняющихся 111 фунтамъ стерлинговъ.

Записанный 1го Марта 1822.

Книга 2, стран. 439. 2 займа Лит. А.

Непрерывный доходъ 36 руб. сереб. или 5 ф. с. 11 шилл.

Капиталъ 720 рублей сереб. равняющійся 111 ф. с.

Предъявитель сего Свидѣтельства имѣетъ право на непрерывный доходъ, заключающійся въ *тридцати шести рубляхъ серебромъ*, платимый чрезъ каждые полгода по его произволу въ *С. Петербургѣ* или *Лондонѣ*, а именно: *восемьнадцать рублей серебромъ* 1го числа Марта и *восемьнадцать рублей серебромъ* 1го числа Сентября; естьли въ *С. Петербургѣ*, то серебряными рублями настоящаго вѣса и пробы, естьлижъ въ *Лондонѣ*, то по *три шиллинга* и *одинъ пенсъ стерлингъ* за каждый серебряный рубль: въ томъ и другомъ случаѣ по предъявленіи купона на причитающійся къ платежу непрерывный доходъ. Предъявитель сего Свидѣтельства можетъ, представивъ оное въ Государственную Коммиссію погашенія долговъ, требовать, чтобы вмѣсто онаго выданъ былъ безсрочный билетъ на туже сумму на его имя, или на имя лица, или лицъ, которыя онъ назначитъ: въ такомъ случаѣ непрерывный доходъ имѣетъ быть платимъ токмо въ *С. Петербургѣ* въ вышепостановленные сроки, и трансфертъ или передача таковыхъ билетовъ должна быть производима по существующимъ правиламъ.

Двадцать четыре купона принадлежатъ къ сему Свидѣтельству. Естьли при наступленіи срока послѣднему изъ нихъ, капиталъ не будетъ выкупленъ, или обращенъ въ безсрочный билетъ Коммиссіи погашенія долговъ; то имѣютъ быть выданы вновь двадцать четыре купона, и такъ далѣе, дабы обезпечить предъявителю полученіе непрерывнаго дохода въ *С. Петербургѣ* или *Лондонѣ*.

Прим. Особенный фондъ или капиталъ, составляющій (ежегодно) *одинъ* процентъ со всей суммы сего займа, назначенъ на выкупъ его.

Выписка изъ Устава Коммиссіи:

§. 22. Безсрочный непрерывный доходъ, равно какъ и платежъ срочныхъ долговъ, производится и въ мирное и военное время безъ всякаго различія, къ дружественной ли или непріязненной націи принадлежитъ вкладчикъ.

§. 23. Въ случаѣ смерти иностраннаго вкладчика безъ завѣщанія, безсрочный долгъ имѣетъ принадлежать его наслѣдникамъ по порядку и правамъ наслѣдія той націи, къ которой онъ принадлежалъ.

§. 24. Капиталы, въ безсрочный долгъ обращенные, составляя ненарушимую собственность вкладчика, не подвергаются секвестру ни по казеннымъ ни по частнымъ искамъ; исключая, естьли весь или часть капитала представлена въ залогъ по подрядамъ, или другимъ сдѣлкамъ съ казною или частными людьми, или въ обезпеченіе иска; въ такомъ случаѣ оный подлежитъ общимъ правиламъ о залогахъ и взысканіяхъ. Равнымъ образомъ таковые капиталы ни въ какомъ случаѣ не подлежатъ никакимъ налогамъ.

§. 25. Никто не можетъ быть противъ его желанія принужденъ къ обратному полученію всего или части капитала, въ безсрочномъ долгѣ помѣщеннаго. Но дабы съ другой стороны предоставить каждому болѣе удобности обратить оный, когда пожелаетъ, въ наличныя деньги, Коммиссія имѣетъ употреблять на выкупъ оныхъ по курсу особенный капиталъ погашенія, ежегодно сверхъ платежа непрерывныхъ доходовъ на предметъ сей назначаемый.

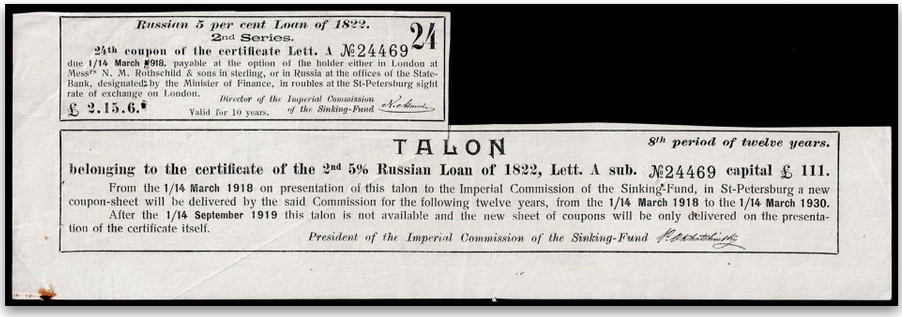
За Управляющаго С. Лаксманъ

Бухгалтеръ [illegible]

COUPONS DELIVERED IN LONDON 1834

COUPONS DELIVERED IN LONDON 1834

Nathan Rothschild 1777-1836, banking family #2247



Russian 5 per cent Loan of 1822.
2nd Series.
24th coupon of the certificate Lett. A №24469 24
due 1/14 March 1918, payable at the option of the holder either in London at Messrs N. M. Rothschild & sons in sterling, or in Russia at the offices of the State-Bank, designated by the Minister of Finance, in roubles at the St-Petersburg sight rate of exchange on London.
£ 2.15.6.
Director of the Imperial Commission of the Sinking-Fund
Valid for 10 years.

TALON
belonging to the certificate of the 2nd 5% Russian Loan of 1822, Lett. A sub. №24469 capital £ 111.
8th period of twelve years.
From the 1/14 March 1918 on presentation of this talon to the Imperial Commission of the Sinking-Fund, in St-Petersburg a new coupon-sheet will be delivered by the said Commission for the following twelve years, from the 1/14 March 1918 to the 1/14 March 1930.
After the 1/14 September 1919 this talon is not available and the new sheet of coupons will be only delivered on the presentation of the certificate itself.
President of the Imperial Commission of the Sinking-Fund

Nathan Rothschild, painted after death, 1853

Nathan Rothschild's Trilingual Bond
Nathan Rothschild (1777-1836) signed this trilingual bond in 1822 on the upper right margin. This bond, also called a perpetual annuity, paid 5% interest and was supported by a sinking fund. The front of the bond was written in Russian, while the back featured English and French. It was priced at 720 silver roubles (equivalent to £111).

Holders of the bond received semiannual payments of 18 silver roubles in St. Petersburg or 55 shillings and sixpence in London. They reissued the bond's coupons every 12 years. The coupon displayed is the last of its eighth 12-year cycle, issued in 1918, and it included provisions for an additional 12 years. Coupons had to be redeemed within 10 years of their due date. To cancel the bond, Rothschild & Company would have needed to repay the remaining sinking fund to the bondholder. This bond is no longer active.

Nathan Rothschild: A Financial Pioneer
Nathan Rothschild, born in Frankfurt, Germany, was one of five brothers — Amschel, Salomon, Carl, James, and Nathan — sent by their father to establish banking networks across Europe. They settled in London, Paris, Frankfurt, Vienna, and Naples. Nathan, widely regarded as the most successful of the brothers, became a transformative figure in global finance.

Early Career
At age 21, Nathan moved to Manchester, England, to trade textiles during the Industrial Revolution. A few years later, he relocated to London, where he made a fortune trading bills of exchange. By 1809, he expanded into gold bullion trading and, in 1811, acted as a foreign exchange dealer, supplying funds to Wellington's troops in the Iberian Peninsula.

Waterloo and Financial Success
Nathan is famously linked to claims of using couriers to gain early knowledge of the outcome of the Battle of Waterloo in 1815, allegedly allowing him to outmaneuver other investors in the British stock market. While these accounts suggest insider trading, no definitive evidence supports these claims.

Nathan's empire was vast. He loaned Prussia £5 million, provided critical liquidity to the Bank of England during a financial crisis, and financed Britain's wars against Napoleon. Financing wars is a risky business. If the country loses, the financier has no collateral to go back on.

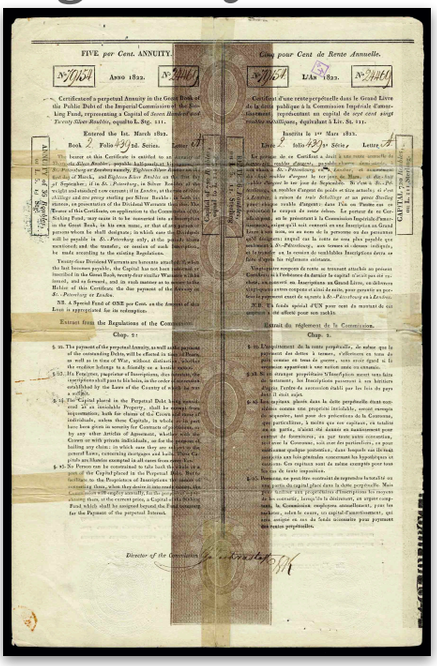
He also played a controversial role in the British government's £15 million compensation to slave owners following the 1837 abolition of slavery. As a mortgage holder for an Antigua plantation, Nathan himself received £2,571 under the Slave Compensation Act.

At the time of his death, Nathan Rothschild's net worth represented 0.62% of Britain's GDP, cementing his legacy as a financial titan and founder of the Rothschild banking dynasty.

Rothschild Banking Legacy
Nathan's son, Lionel Rothschild (1808–1873), succeeded him and continued expanding the family's influence. Lionel financed Britain's 1875 purchase of the Suez Canal and served as a director of the Bank of England.

The British and French branches of the Rothschild Bank merged, supporting ventures like Cecil Rhodes' British South Africa Company, the Rhodes Scholarship, and De Beers diamond mines. Today, Rothschild & Co. employs 4,600 people, specializing in wealth management, asset management, private equity, and mergers and acquisitions advisory. The Rothschild family retains 48% ownership of the bank, valued at approximately $1 billion, with additional holdings through a complex network of shell companies.

Myth and Reality
The Rothschild family's secrecy and wealth have fueled numerous conspiracy theories, some wildly overstating their net worth — ranging from $400 billion to $20 trillion. Despite such claims, the family's true wealth is hard to quantify due to their intricate financial arrangements.



FIVE per Cent. ANNUITY.
Cinq pour Cent de Rente Annuelle.
Certificate of perpetual Annuity in the Great Book of the Public Debt of the Imperial Commissioners of the Sinking Fund, representing a Capital of
Certificat d'une rente perpétuelle dans le Grand Livre de la dette publique à la Commission Impériale d'Amortissement, représentant un capital de
Entered the 1st March 1822.
Inscrite le 1er Mars 1822.
Director of the Commission

Back of Rothschild 1822 loan

Barings Bank Collapse
In contrast to Rothschild's enduring legacy, the Barings Bank, once a rival institution, collapsed in 1995. Nick Leeson, a derivatives trader, lost £827 million through unauthorized trades. Barings' lack of oversight led to public outrage, and the Dutch bank ING acquired it for just £1. Leeson served four years in prison and now works as a corporate risk consultant.

Rothschild coat of arms

Rothschild Coat of Arms
In 1822, Emperor Francis I of Austria granted baronial titles to the five Rothschild brothers, allowing them to use the honorific "von." Nathan, however, chose not to adopt this title.

The Rothschild coat of arms features symbols of their dual influence: the Austrian eagle and the British lion, interspersed with a hand grasping five arrows. The arrows symbolize the family's unity, reflecting the belief that while a single arrow can be broken, five united arrows (the five brothers) are much stronger.

Through centuries of strategic investments and adaptability, the Rothschild family has maintained its status as a pillar of global finance while fostering an enduring mystique.

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POYAISIAN LAND GRANT.
NESCIUS VINCI
500 LIBERTATE DEFENDENDA Acres
OPTIMUM

Class B. No. 867

Grant of 500 Acres.

Copy of the ORIGINAL GRANT *from the King of the Mosquito Shore and Nation, to His Excellency General Sir Gregor Mac Gregor.*

GEORGE FREDERICK II., D. G., King of the Mosquito Shore and Nation.

By virtue of these Presents, We do hereby grant and devise unto His Excellency General Sir Gregor Mac Gregor, and his Heirs for ever, all the Lands laying on the North Mosquito Shore, comprehended and bounded under the following description, viz. :—

NORTH.—All the Sea Coast comprehended between the 84° 25′ to the 85° 8′ degree of Longitude West from the Meridian of London.

SOUTH.—By a straight line drawn due West from Longitude 84° 42′ to Longitude 85° 42′ West, along the 13th Degree of North Latitude.

EAST.—From the Longitude of 84° 25′ West, by a line drawn due North and South, until it touches the western bank of Plaintain River in Latitude 15° 37′ North, and then following the western bank of that River to Latitude 15° North, and Longitude 84° 42′ West, and from thence in a straight line, drawn due South, until it touches the 13° of North Latitude.

WEST.—From the mouth of Zacarylyon River, in Longitude 85° 8′ West, and following the eastern bank of the said River, South, to Latitude 15° 28′ North, and then by a line drawn due West until it touches the Rio Grande, or Romaine River, in Latitude 15° 28′ North, and Longitude 85° 42′ West, and then by a straight line, drawn due South, until it intersects the 13° degree of North Latitude, and in Longitude 85° 42′ West from the Meridian of London.

And furthermore, We grant unto the said Sir Gregor Mac Gregor full power and authority to enact laws, establish customs, and, in a word, to take and adopt all measures that he may deem fit and necessary for the protection, defence, better government, and prosperity of the above described district of land, commonly called Black River Polayas, or Poyais. But let it be clearly understood, that there is nothing contained in this Deed which shall be construed into a cession of the Sovereignty of the country as now held by His Mosquito Majesty.

GIVEN under our Hand and Seal, at Cape Gracias á Dios, this Twenty-ninth Day of April, in the Year of our Lord One Thousand Eight Hundred and Twenty, and the Fourth of our Reign.

GEORGE FREDERICK,
King of the Mosquito Nation. *(L. S.)*

By His Majesty's Command,—WILLIAM BOGGS.

Note.—The Latitudes and Longitudes mentioned in the within Grant, are taken from "The complete Pilot for the West Indies, &c., by the late Thomas Jeffreys, Geographer to the King; and printed for Robert Sayer, No. 53, Fleet Street, London."—And it is by the Chart, No. 18 of the said Book, that the Boundaries at all times are to be recognized by Us. Cape Gracias á Dios, 29th of April, 1820.

GEORGE FREDERICK,
King of the Mosquito Nation.

By His Majesty's Command,—WILLIAM BOGGS.

WILLIAM SMITH, of Clandon Street, Walworth, in the County of Surry, Mate of the Ship called the Honduras Packet, trading between Poyais and London, and now in the Port of London, maketh Oath and saith, That he was present at Cape Gracias á Dios, and did see the Paper Writing hereunto annexed, bearing date the Twenty-ninth Day of April, One Thousand Eight Hundred and Twenty, and purporting to be a Grant by GEORGE FREDERICK the Second, King of the Mosquito Shore and Nation, of certain Territories within His Kingdom, to General Sir Gregor Mac Gregor, signed by the said GEORGE FREDERICK, and that the Seal of His said Majesty was then affixed by His said Majesty to the said Paper Writing; And that he, this Deponent, did then and there also see WILLIAM BOGGS sign his name at the foot of the said Paper Writing.

WILLIAM SMITH.

Sworn at the Public Office in Southampton Buildings, Chancery Lane, London, the 14th Day of October, 1822. Before me, F. CROSS.

This Paper Writing was produced and shewn to William Smith, being referred to by his Affidavit sworn this 14th Day of October, 1822. Before me, F. CROSS.

By Affidavit. And be it remembered, That on the Oath of William Smith, the Grant aforesaid was inrolled, word for word as above written. Inrolled the Fourteenth Day of October, in the Year of our Lord One Thousand Eight Hundred and Twenty-two. This agrees with the Record.

I. ENSOM,
Deputy Clerk of Inrolments in the High Court of Chancery.

Indorsed Official Copy. Grant by His Majesty, GEORGE FREDERICK the Second, King of the Mosquito Shore and Nation, to His Excellency General Sir Gregor Mac Gregor. Inrolled in His Majesty's High Court of Chancery, the Fourteenth Day of October, in the Year of our Lord 1822. 14 P. B. I. ENSOM.

I, HENRY JOSEPH DURIEU, of the City of London, Notary Public, by Royal Authority duly admitted and sworn, Do hereby certify, attest, and declare, to all whom it may concern, that the aforegoing contains a just, true, full, and faithful Copy of an Original Deed of Grant, bearing date Cape Gracias á Dios, the Twenty-ninth Day of April, One Thousand Eight Hundred and Twenty, and duly executed by GEORGE FREDERICK, King of the Mosquito Nation, to, and in favour of His Excellency General Sir Gregor Mac Gregor, as appears by an Inrolment thereof made in His Majesty's High Court of Chancery, the Fourteenth Day of October, to which reference has been made by me, the Notary :—I the said Notary having carefully examined, duly collated, and faithfully compared the same with the said Inrolment.

Act, &c. of which being required, I have granted these Presents to serve and avail where needful, hereto set my notarial firm, and affixed my Seal of Office, this Twenty-sixth day of September, in the Year of our Lord One Thousand Eight Hundred and Twenty-three.

QUOD ATTESTOR,
(L. S.) H. I. DURIEU, Notary Public.

We, the undersigned Public Notaries, of, and practising in the City of London, Do hereby certify, unto all whom it may concern, that Mr. Henry Joseph Durieu, who has signed and passed the foregoing Act, is a sworn Public Notary, also duly practising in this City, and that to all Acts and Instruments by him thus signed and passed, full faith and credit are given in Judicature and thereout. London, 26th September, 1823.

C. SUNDIUS, Not. Pub.
I. BARBER, Not. Pub.

Grant of 500 Acres.

We, Gregor Mac Gregor, Cacique of Poyais, do hereby certify that the Bearer hereof is entitled to Five Hundred Acres of Land in that part of the Poyaisian Republic called Poyais Proper. And we do hereby declare this to be a Certificate for a Special Grant of Five Hundred Acres of Land, and that the Bearer hereof may take possession of the same in any unappropriated part of the aforesaid territory, (our Title to which Land in Poyais Proper being set forth in the foregoing Copy of the Original Grant,) or in any other unappropriated part of the Republic, on condition of paying unto us and our heirs the sum of one cent of a dollar per Acre annually, in name of quit rent, on the twenty-fourth day of December in each year. The said quit rent, however, not to commence until possession of the said land is taken by virtue hereof. And we do hereby promise and bind ourselves and our heirs to make, execute, and deliver to the Bearer hereof upon request, at any time after the possession of the said land shall be had and obtained, a regular Title of the same to him and his heirs for ever. *Edinburgh, April 28*, 1834.

Entered Vol. 1, Fol. 159

Gregor Mac Gregor

Hayart Sempill

We, the undersigned Trustees for the Exchange and Redemption of *certain* of the outstanding Securities of the Poyaisian Territory, by Deed duly appointed, do hereby certify that the above Land Grant is properly issued, and available for the purpose therein mentioned.

London April 28, 1834.

William Mc Dowall
J. Blisard
A. H. Millar

Classe B. No. 867

Concession de 500 Acres.

(TRADUCTION.)

Copie de l'Acte de CONCESSION *en* ORIGINAL *de la part du Roi de la Côte et de la Nation de Mosquito, en faveur de Son Excellence le Général Sir Gregor Mac Gregor.*

GEORGE FREDERIC Deux, par la Grace de Dieu, Roi de la Côte et de la Nation Mosquitticnne.

NOUS octroyons et concédons par ces présentes à Son Excellence le Général Sir Gregor Mac Gregor, et à ses hoirs à perpétuité, Tous les Terreins sis et situés sur les côtes du Nord de Mosquito compris et bornés sous la description suivante.

AU NORD.—Toute la Côte de la Mer comprise entre les 84° 25′ jusqu' aux 85° 8′ de Longitude occidentale du Meridien de Londres.

AU SUD.—Par une ligne droite tirée directement à l'ouest des 84° 42′ aux 85° 42′ de Longitude occidentale, au long du 13me dégré de Latitude septentrionale.

A L'EST.—Depuis les 84° 25′ de Longitude occidentale par une ligne tirée directement au Nord et au Sud jusju'à ce, qu'elle touche le bord occidentale de la Rivière de Plantain, dans 15° 37′ de Latitude septentrionale, puis continuant depuis le bord occidentale de cette Rivière jusju'au 15° de Latitude septentrionale et 84° 42′ de Longitude occidentale et de là dans une ligne droite tirée directement au Sud jusqu'à ce qu'elle touche le 13me dégré de Latitude septentrionale.

A L'OUEST.—Depuis l'embouchure de la Rivière de Zacarylyon dans les 85° 8′ de Longitude occidentale et continuant depuis le bord oriental de la dite Rivière au Sud jusqu' aux 15° 28′ de Latitude septentrionale ; puis par une ligne tirée directement à l'ouest jusqu' à ce qu'elle touche le Rio Grande ou la Rivière de Romaine dans 15° 28′ de Latitude septentrionale et 85° 42′ de Longitude occidentale; puis par une ligne droite tirée justement au sud jusqu'à ce qu'elle coupe le 13me dégré de Latitude septentrionale et dans 85° 42′ de Longitude occidentale du Meridien de Londres.

De plus Nous donnons plein pouvoir et autorite au dit Chevalier Gregor Mac Gregor de faire des Lois, d'établir des douanes, et un mot de prendre et adopter toutes les mesures qu'il jugera convenables et nécessaires pour assurer la protection, la défense, le meilleur gouvernement, et la prospérité du district de Terrein ci-dessus décrit, ordinairement appellé la Rivière noire, Polayas ou Poyais. Bien entendu qu'aucune chose contenue dans cet acte ne pourra être cenrée à s'étendre à une cession de la souveraineté du pays à présent tenu par sa Majesté Mosquittienne.

Donné sous notre seing et sceau au Cap Gracias à Dios ce vingt neuvième jour d'Avril, l'an de notre Seigneur mil huit cent vingt et le quatrième de notre Règne.

(L. S.) GEORGE FREDERIC,
Roi de la Nation de Mosquito.

Par ordre de sa Majesté,—WILLIAM BOGGS.

Note.—On a pris les Latitudes et Longitudes dont l'Acte de Concession en dedans fait mention, du "Complete Pilot for the West Indies, &c. par le feu Thomas Jefferys, Géographe du Roi, imprimé pour Robert Sayer, No. 53, Fleet Street, à Londres," et c'est d'après la carte No. 18, du dit livre, que les limites doivent être de tout tems par nous reconnus. Au Cap Gracias à Dios le 29 Avril, 1820.

GEORGE FREDERIC,
Roi de la Nation de Mosquito.

Par ordre de sa Majesté,—WILLIAM BOGGS.

WILLIAM SMITH, de Clandon Street, Walworth, dans le comté de Surry, contre-maitre du Navire nommé l'Honduras Packet, faisant trafic de Poyais à Londres, et actuellement dans le Port de Londres, fait serment et déclare s'être trouvé présent au Cap Gracias à Dios et avoir vu l'écrit ci-annexé, daté du vingt neuvième jour d'Avril, mil huit cent vingt et portant être une Concession de la part de GEORGE FREDERIC Deux, Roi de la côte et de la Nation de Mosquito, de certains Territoires dans son Royaume en faveur du Général le Chevalier Gregor Mac Gregor, signer du dit GEORGE FREDERIC, et que le scean de sa dite Majesté a été ensuite apposé par sa dite Majesté au dit Ecrit ; et de plus que le deposant a alors vu WILLIAM BOGGS signer son nom en bas du dit écrit.

WILLIAM SMITH.

Asserminté au Bureau public dans Southampton Buildings, Chancery Lane, à Londres, le quartorzième jour d'Octobre, 1822.

Par devant moi, F. CROSS.

Cet Ecrit auquel se rapporte la déclaration de William Smith, asserminée ce quatorzième jour d'Octobre, 1822, lui fut exhibé et montré. Par devant moi, F. CROSS.

En vertu d'une Déclaration sous serment. Que l'on conserve le souvenir que sur le serment de William Smith, le susdit acte de Concession a été enregistré mot à mot, ainsi qu'il est ci-cessus écrit. Enregistré le quartorzième jour d'Octobre, l'an de notre Seigneur mil huit cent vingt deux. Conforme aux Registres.

(Sign) I. ENSOM,
Clere-Commis des Enrégistremens dans la Haute Cour de la Chancellerie.

Au dos est écrit, Copie d'Office. Acte de Concession de la part de sa Majesté George Frederic Deux, Roi de la Côte et de la Nation Mosquittienne, en faveur de Son Excellence le Général Sir Gregor Mac Gregor. Enregistré dans la Haute Cour de la Chancellerie de sa Majesté, le quartorzième jour d'Octobre, l'an de notre Seigneur 1822. 14 P. B. I. ENSOM.

Je, HENRY JOSEPH DURIEU, Notaire Public en la ville de Londres, par Autorité Royale dûment admis et juré, certifie, atteste, et déclare à qu'il appartiendra que, ce qui précède est copie juste, vraie, pleine, et fidèle d'un acte de Concession en Original, en date du Cap Gracias à Dios, le vingt neuf Avril mil huit cent vingt, dûment passé par GEORGE FREDERIC, Roi de la Nation de Mosquito, en faveur de Son Excellence le Général Sir Gregor Mac Gregor, ainsi qu'il appert par l'Homologation d'icelui, fait dans le Cour de la Chancellerie de sa Majesté, le quatorze Octobre, auquel je dit Notaire me suis référé, l'ayant soigneusement, dûment et fidèlement collationné et comparé avec la dite Homologation.

Dont Acte étant requis, j'ai octroyé les présentes pour servir et valoir ainsi que de droit sous mon Sceau et Seing Notarial, ce vingt six Septembre, l'an de Grace mil huit cent vingt trois.

CE QUE J'ATTESTE,
(L.S.) H. J. DURIEU, Notaire Public.

Nous Soussignés Notaires Publics en la ville de Londres y pratiquant, certifions par les présentes à qui il appartiendra que Mr. Henry Joseph Durieu, qui a passé et signé l'acte qui précède est Notaire Public juré également dûment pratiquant en cette Ville ; et qu'à tous actes et Ecrits par lui ainsi passés et signés pleine foi et crédit doivent être ajoutés tant en Jugement que dehors. Londres, le 26 Septembre, 1823.

C. SUNDIUS, Not. Pub.
I. BARBER, Not. Pub.

Concession de 500 Acres.

Nous, Gregor Mac Gregor, Cacique de Poyais, certifions par les présentes que le Porteur d'icelles a droit sur Cinq Cent acres de Terre, dans cette partie de la Republique Poyaisienne, appellée Poyais Propre. Déclarons de plus que les présentes doivent être considérées comme Certificat pour la Concession Speciale de Cinq Cent Acres de Terre, et que le Porteur d'icelles en pourra prendre possession dans aucune partie du dit Territoire qui ne sera point préalablement appropriée (notre droit sur la quelle Terre de Poyais Propre est énoncé dans la Copie transcrite ci-dessus de l'Acte de Cession en original), ou en aucune autre partie non appropriée de la Republique, moyennant la somme d'une centième de piastre par Acre par an, à nous et à nos hoirs pour le cens d'icelui, au vingt quatre Decembre de chaque année. Bien entendu que le dit cens ne commencera, qu' apres avoir pris possession de la Terre en vertu des présentes. Et nous promettons et nous nous obligeons, nous et nos hoirs de faire, effectuer et delivrer au Porteur des Présentes sur sa requête, après avoir obtenu et s'être mis en possession de la dite Terre, un octroi et titre d' icelles selon les règles, à lui et à ses hoirs à perpétuité. *Edinbourg ce d'Avril*, 1834.

Enrégistré Tom. , Fol.

Gregor MacGregor 1786-1845, Poyasian Scandal #2077

Gregor MacGregor was born in 1786, son of Daniel MacGregor, an East India Company Sea Captain. His grandfather was a nephew of Rob Roy. The story that follows is largely Gregor's own account, obviously charmed and much embellished. As the king of confidence tricksters, he stole the life savings of many.

Aged 16, he joined the British Army, rising to captain by the age of 23. He then sold his commission for £1,350, joining the Portuguese army, where he had previously served as a major! During that time, he fought for the Duke of Wellington's peninsular war in 1809 to drive the French out of Spain. Aged 18, he married Maria Bowater, an admiral's daughter, and in 1810 took her to Edinburgh, where he now called himself "Colonel". The next year, they moved to London, where he now styled himself "Sir Gregor MacGregor," the chieftain of the MacGregor clan!

Gregor in military finery

That year, his wife died, and he sailed to Venezuela, serving in Bolivar's army where he rose to Brigadier General, and married a cousin of Simon Bolivar. There, he earned a reputation as an unreliable braggart. Returning to England in 1817, he got a £1,000 loan from Bolivar's London representative, Mendez, to raise recruits. He was obviously persuasive, but spent it all on himself, leaving Mendez in debtor's prison, unable to repay the loan.

In 1816, he visited Philadelphia with his first big con scheme. He got a special commission from several Central and South American republics to capture Florida (then Spanish). After an offer of $150,000 to finance an expedition, he then sold 30,000 acres in Florida at $1 an acre!

He then recruited 73 soldiers in Savannah, GA, and in June 1817, captured Amelia Island Fort, off Florida. The soldiers promptly disappeared. He then established an admiralty court on the island to fix the value of privateers' loot (for a 16% fee)! When the Spanish army attacked him, Gregor sold the island to a French privateer for $50,000.

Gregor medal he issued for Amelia Island

Gregor then returned to London, and offered to work for Bolivar's Columbian representative, who, like Mendez, also ended up in debtor's prison. This time, Gregor recruited 1,700 men to send to the "Spanish Main" (the Spanish coast around the Gulf of Mexico). In 1819, he sailed with his troops to Panama, where he captured Portobello, but was soon defeated by the Spanish and returned to London. Bolivar was furious. Thus, according to Gregor, from 1810 to 1819, he seemed to "jet" all over the place.

The Miskito or "Mosquito" Coast was in what is now Honduras. Named after the Miskito Indians, its borders were indistinct, but the Miskito Indians claimed a kingdom there. Spain could not subdue it or Christianize it, so English and Dutch privateers found it a good rest place away from the Spanish in the 1700s.

In 1803, Spain labeled it part of the Viceroyalty of New Granada. When Columbia became independent in 1821, they considered it their land. The threatened Miskito Kings asked Britain for protection, so in 1834, they became a British protectorate until 1894.

Enter Gregor MacGregor! He claimed he got the Miskito King drunk on whiskey one night in 1820, who granted him a vast tract of land. Whether true or not, the Miskito King, George Frederic Augustus I, declared the grant null and void in 1823.

Thus began the biggest con in history. In 1821, Gregor published a broadside labeling himself as the "Cazique of Poyais". A Cazique or Cacique was a Spanish word for a native Indian chief. The State of "Poyais" was as fictional as his knighthood. He based his grant on Chart #18 of Thomas Jeffreys "*A Complete Pilot for the West Indies…*" published in 1782, which he registered with a London Court in 1822. The southern boundary of the map was conveniently at the bottom of the page!

Gregor then opened a Poyaisian legation office in London, and printed a detailed 355-page book "*Sketch of the Mosquito Shore: Including the territory of Poyais, Descriptive of the country.*" He used the false name of Thomas Strangeways, KGC, presumably to mean Knight of the Grand Cross, an English order of chivalry. There was no such order!

Engraving from Sketch of Mosquito Shore

Then he printed up certificates, pamphlets, and handbills, and advertised. Later, he opened other offices in Scotland and Paris. His pamphlets and his book described a too-good-to-be-true nirvana, with cathedrals, opera houses, plentiful gold nuggets, diamonds and pearls, a perfect climate, perfect agriculture, beauty, and safety. Even today, too many do not understand, "if it's too good to be true…"

In 1822 and 1823, Gregor offered £400,000 of bonds, discounted at 20%. Perring, Shaw, and Barber Bankers sold the bonds. Perring had been Lord Mayor of London, but his bank failed in 1826 and he lost his estates. A glut of fraudulent firms caused a London Stock Exchange crisis that year. At the time, a mass of land bonds from new Central and South American countries sold in Europe, raising £17 million in London.

In 1822, 70 duped Scottish Highlanders sailed for Poyais. Some bought officer commissions in the Poyais Army from Gregor. Many turned in their local currency for Poyais currency (engraved by the same engraver as the bank of Scotland)! Gregor printed 70,000 Poyaisian dollar notes! Anything to part the investor from his money!

$1 Poyasian note, courtesy StacksBowers.com

The next year, 170 colonists followed from Scotland. Once there, about 190 of the 240 died from fever, starvation or drowning. A few got to Belize, and even returned to England. Although bad reports came back to England, Gregor ensured good reports also reached the news through confusion, PR, bribery, or alias reports. Why did Gregor even charter the two ships? To get more cash!

After his 1823 bonds defaulted, Gregor fled to Boulogne, France, with his family. Two years later, he opened a Poyaisian office in Paris, using a different London banker as a broker — Thomas Jenkins & Co. He wrote a prospectus covering a £300,000 loan to work a Poyaisian gold mine! But they may never have issued the bonds as Paris imprisoned him for fraud as they found so many Frenchmen applying for visas to an unknown land call "Poyais"! After seven months, they released him. He returned to London, where he set up at 23 Threadneedle St., next door to the Bank of England!

In 1827, again using Jenkins, Gregor printed £800,000 worth of 20-year bonds at 3% at 60% discount. He could pay the first three years of interest in Land Certificate Warrants at five shilling an acre! How convenient! A group of greedy speculators bought some at great discounts. But his gains were dwindling.

He was once arrested in London but released after eight days. God knows how he got out, but one suspects connections, money, and charm. Even in 1837, Gregor was still trying to sell land certificates. After his new wife, Josefa, died in 1838 in Scotland, he went to Venezuela to petition the government to recognize his old military service. They gave him back pay and a pension! When he died in 1845, they buried him at Caracas cathedral with full military honors.

A fascinating ante-script was the Darien scheme from 1695 to 1699. Scotland spent a major part of their GDP for several years on financing useless expeditions to Darien, Panama, a land of milk and honey. It turned out to be a land of disease, death, and debt.

Gregor stole about $8.75 million (0.46% of US GDP in 1845). Bernie Madoff stole $17.5 billion (only 0.1% of US GDP on arrest in 2009), but they since recovered $14.5 billion.

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https://en.wikipedia.org/wiki/Gregor_MacGregor

1000

DOMINION OF CANADA

CANADA SOUTHERN

SECOND MORTGAGE 1000 RAILWAY COMPANY. 1000 REGISTERED BOND

NUMBER 488 NUMBER 488

Know all men by these presents that the Canada Southern Railway Company a body politic and corporate under the Laws of the Dominion of Canada is indebted to _____ or assigns in the sum of ONE THOUSAND DOLLARS of lawful money of the Dominion of Canada which the said Company promises to pay on the first day of March in the year of our Lord One thousand nine hundred and thirteen at the office of the Union Trust Company of New York, in the City of New York, State of New York, United States of America, with interest thereon in the meantime in like lawful money at the rate of FIVE per centum per annum payable at the same place half-yearly on the first days of September and March of each year.

This Bond is one of a series issued and to be issued to an aggregate amount not exceeding six millions of Dollars for the security of which and the interest the Railway and undertaking Roadway, lands, tolls, revenues and other property of the Company are mortgaged to Augustus Schell and Cornelius Vanderbilt of the said City of New York as trustees subject to the prior charge and incumbrance on the said premises for the issue of fourteen Millions of dollars of First Mortgage Bonds of the Company and secured by mortgage dated the thirty first of October 1877, to the said Augustus Schell and Cornelius Vanderbilt Trustees. This Bond and any interest therein shall not pass or be transferable except by transfer on the books of the Company at its agency in the said City of New York, or at the office to be designated for that purpose by the Board of Directors of the Company and registration of ownership certified hereon by the Transfer Agent of the Company. This Bond shall not become obligatory unless it shall have been Countersigned by the Union Trust Company of New York.

1000 1000

In testimony whereof the Canada Southern Railway Company has caused its Corporate Seal to be hereunto affixed at the City of St. Thomas in the Province of Ontario, Dominion of Canada and the same to be attested by the signatures of its Vice President and Secretary this _____ day of _____ One thousand eight hundred and eighty _____

COUNTERSIGNED BY THE UNION TRUST COMPANY OF NEW YORK,

PRESIDENT.

VICE PRESIDENT.

SECRETARY.

American Bank Note Co. New York

10,000. 10,000.

Nº X1150 Nº X1150

The New York and Harlem Railroad

Three and One-Half Per Cent. COMPANY. Registered Gold Bond.

Know all Men by these Presents, That The New York and Harlem Railroad Company, a corporation, hereinafter called the "Railroad Company," for value received, promises to pay to Harvey Fisk & Sons.

or assigns the sum of TEN THOUSAND DOLLARS gold coin of the United States on the first day of May in the year 2000, at the office or agency of the Railroad Company in the City of New York, N.Y., and to pay interest thereon from the first day of May or November, as the case may be, next preceding the date hereof at the rate of three and one half of one per cent per annum, payable semi-annually at said office or agency in like gold coin on the first day of May and the first day of November in each year until the payment of said principal sum, such United States gold dollars in every case to be of the standard of weight and fineness as it existed June 1, 1897. Both the principal and interest of this bond are payable without deduction for any tax or taxes which the Railroad Company may be required to pay, or to retain therefrom, under any present or future law of the United States, or of any State or County or Municipality therein. This bond is one of a series of Mortgage Three and One half per cent. Gold Bonds (coupon and registered) of the Railroad Company, issued and to be issued for the aggregate principal sum of Twelve Million Dollars, all of which bonds are reserved to take up $12,000,000 bonds secured by the Consolidated Mortgage and are to be issued under and in pursuance of, and all equally secured by, a mortgage or deed of trust dated June 1, 1897, executed by the Railroad Company to Guaranty Trust Company of New York, as Trustee, of all the property and franchises of the Railroad Company mentioned in said mortgage or deed of trust, to which reference is hereby made for a statement of the property and franchises mortgaged, the nature and extent of the security and the rights of the holders of said bonds under the same, and of the terms and conditions upon which said bonds are issued and secured.

This bond is transferable by the registered holder thereof in person, or by attorney duly authorized, on the books of the Railroad Company, at its office or agency in the City of New York, upon surrender and cancellation of this bond, and thereupon a new registered bond will be issued to the transferee in exchange hereof, as provided in said mortgage or deed of trust, and on payment of the Railroad Company shall so require, of the charge therein provided for. This bond shall not become obligatory for any purpose until it shall have been authenticated by the certificate hereon endorsed of the Trustee under said mortgage or deed of trust.

In Witness Whereof, The New York and Harlem Railroad Company has caused these presents to be signed by its President or one of its Vice Presidents, and its corporate seal to be hereunto affixed, and to be attested by its Secretary or Assistant Secretary this ---10--- day of January 1906.

The New York and Harlem Railroad Company

ATTEST

By

SECRETARY. PRESIDENT.

UNITED STATES OF AMERICA

AMERICAN BANK NOTE COMPANY, NEW YORK.

Cornelius Vanderbilt 1794-1877, shipping & railroads #2000 & #1969

The Commodore
Born into poverty, "The Commodore" rose to own steamboat lines and thirteen railroads. Two of these railroads made the Dow Jones Transport Average Eleven: The Lake Shore and Michigan Southern Railway (shown below right), and the New York Central Railroad (shown on page 90). Imagine Bill Gates owning not only Microsoft but Google as well! Cornelius lived modestly. But his son, William Henry, began the family tradition of showy spending.

The top bond opposite shows not his, but his grandson's signature as vice president of the Canada Southern Railroad Company. Beneath it is a $10,000 gold railroad bond showing a vignette of the Commodore.

Aged 11, Cornelius left school to work on his father's ferryboat. Five years later, he started his own ferry, running freight between Staten Island and Manhattan. That was when other captains jokingly called him Commodore because he was so eager to work.

Aged 19, he married his first cousin, Sophia Johnson, who gave him 13 children. By 23, he became the business manager of another ferry entrepreneur named Thomas Gibbons, who was trying to break the Livingston/Fulton steamboat monopoly, held by Livingston's heirs. The heirs had given a license to one Aaron Ogden. After suits, the Supreme Court said states could not intervene in interstate commerce. This allowed Cornelius to operate.

After Gibbons died in 1826, Cornelius enlarged his own ferry empire. In the 1830s, many textile mills started in New England. Early railroads also started there, linking Boston to Long Island Sound where Vanderbilt had his ferries. He soon started managing railroads, then buying them up.

During the 1849 Californian gold rush, he bought oceangoing steamships to get to Panama, where William Aspinwall had built the Panama Railroad traversing the Panamanian isthmus. Before that, Vanderbilt tried to finance a Nicaraguan canal, as the San Juan River ran from the Atlantic to Lake Nicaragua, itself only 10 miles from the Pacific.

The Commodore left a gift to found Vanderbilt University in Tennessee. When he died, he was one of the wealthiest Americans in history, leaving $100 million.

The Commodore's son William Henry
Ninety percent of his estate went to William Henry Vanderbilt (1821-1885) as the oldest son. From the age of 19, his father had carefully overseen his business training.

William collected over 200 old master paintings and lived in a palatial Fifth Avenue mansion in New York City. Nevertheless, he worked hard. When he died in 1885, the family's fortunes had doubled. Having fathered eight children, he left $70 million to his oldest son, Cornelius Vanderbilt II, who signed the top bond opposite.

The Commodore's grandson Cornelius II
Cornelius II (1843-1899) built "The Breakers" in Newport, Rhode Island, in 1893 (see right). A great socialite, he died at 56 from a cerebral hemorrhage, likely from hypertension.

The first satisfactory measurement of human blood pressure came in 1896. In 1948, the important Framingham longitudinal survey started, involving over 5,000 people, which later showed that blood pressure caused strokes and heart failure. The first medicines for blood pressure only became available in the late 1940s and early 1950s.

Cornelius II's brother William Kissam
After Cornelius II died, the family leadership passed to Cornelius II's brother, William Kissam Vanderbilt 1849-1920. Kissam was his mother's maiden name. He inherited $55 million from his father and took over the management of the family railroad investments. Here is a portrait of him:

William Kissam Vanderbilt on Lake Shore and Michigan Southern RR

But William Kissam "did his own thing". He became a leading yachtsman and bred racehorses. In 1895, after 20 years of marriage, his wife Alva divorced him for adultery.

During the gilded age, the wealthy upper class tolerated adultery. But they did not tolerate divorce. They so shunned divorcees, that William moved to France, where he built a chateau, started a successful horse farm, and remarried.

It was his ex-wife, Alva, who coerced their daughter Consuelo to marry Charles Spencer Churchill, Duke of Marlborough. Money married royalty!

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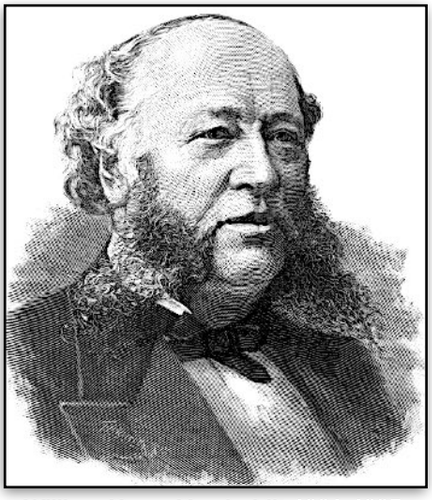
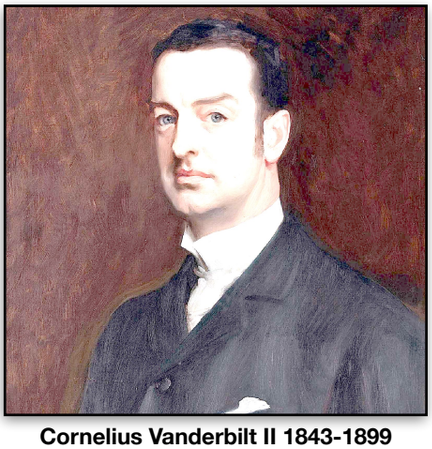
https://en.wikipedia.org/wiki/Cornelius_Vanderbilt
https://en.wikipedia.org/wiki/Cornelius_Vanderbilt#/media/File:Cornelius_Vanderbilt_Daguerrotype2.jpg
https://en.wikipedia.org/wiki/The_Breakers#/media/File:Breakers_01.jpg

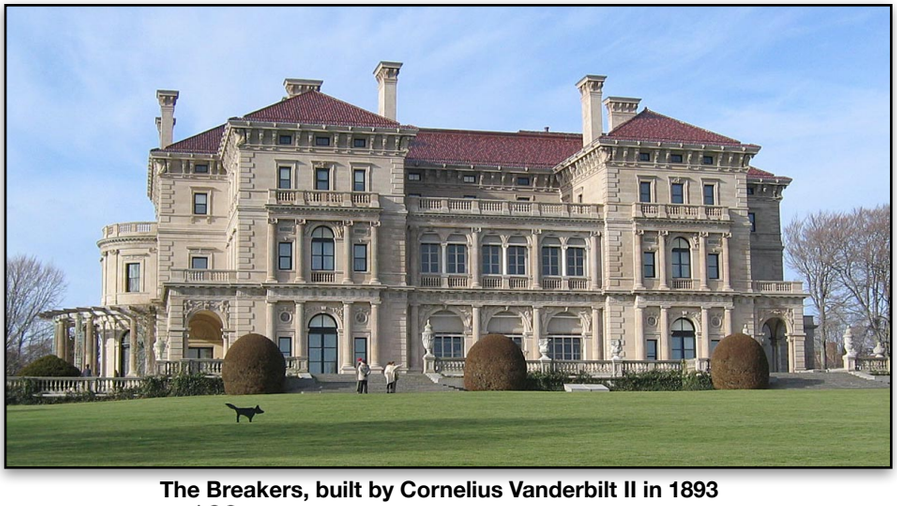
Cornelius Vanderbilt (Commodore) 1794-1877



William Henry Vanderbilt 1821-1885



Cornelius Vanderbilt II 1843-1899



The Breakers, built by Cornelius Vanderbilt II in 1893

AMERICAN EXPRESS COMPANY

CAPITAL STOCK
6000 SHARES.
MARCH 19th 1863.

No. 484

/ SHARES

SHARES 300 DOLLARS EACH.

This Certifies that John Munn of Utica is entitled to [illegible] Shares in the AMERICAN EXPRESS COMPANY, Organized under Articles of Association and Agreement in which it is provided.

That the term of said Company shall be Thirty Years from and after the first day of January 1860.

That said Shares shall be transferable on the books of the Company only, in person or by Attorney on Surrender of this Scrip, and the payment of all calls and assessments due thereon.

That such transfer may be objected to by the board of Directors on condition that they shall purchase said Shares for the benefit of the Company.

That said Shares are Subject to assessment for all losses & damages, or other liabilities incurred in the prosecution of the legitimate business of said Company.

That taking an assignment or transfer of said Shares constitutes the Assignee or holder thereof from and after the date of such transfer a Member of said Company, entitled to all the benefits and subject to all the liabilities, thereto appertaining, as fully as signing said Articles would do.

IN WITNESS WHEREOF, The said Company have caused this Certificate to be signed by their President and Secretary and countersigned by the Treasurer at the Office of the Company, NEW YORK, this Second day of January 1863

Secretary.

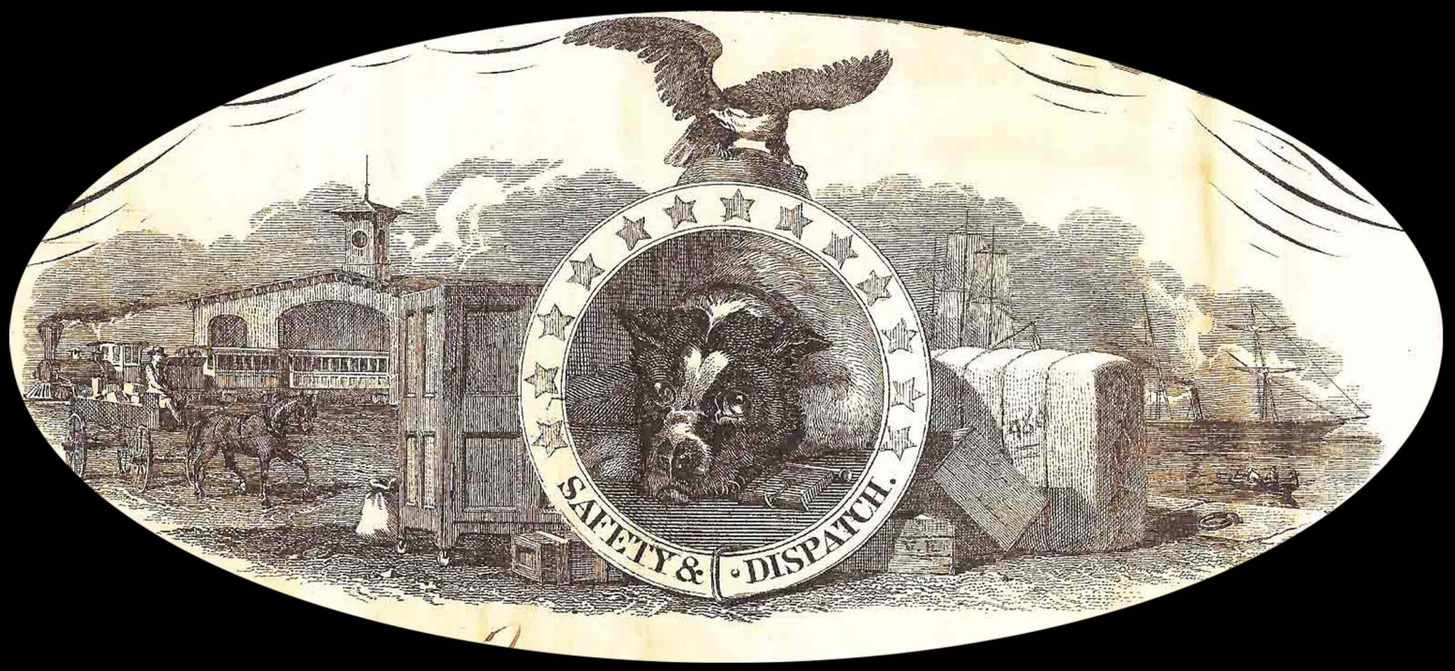
COUNTERSIGNED.

Treasurer.

Henry Wells President.

J.H.Duyckinck, Stationer 15½ Pearl St. N.Y.

SAFETY & DISPATCH.



Secretary.

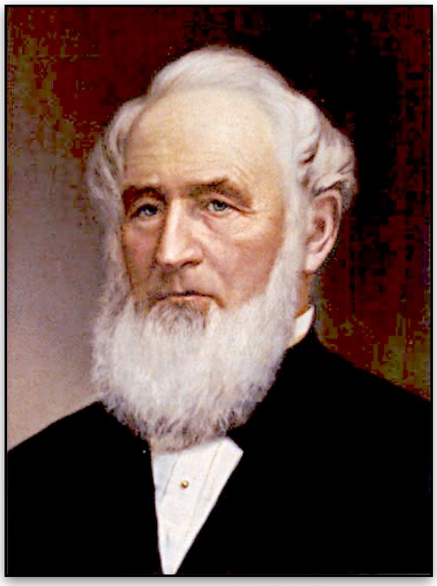
COUNTERSIGNED.

Henry Wells

Henry Wells 1805-1878 & William Fargo 1818-1881, Wells Fargo and American Express #1896

This rare stock certificate shown left is water stained. A small group of these certificates survived and were sold as collectibles. They show the signatures of Wells, Fargo, and Holland. The certificates are uncanceled, but transferred.

Henry Wells
Henry Wells (1805-1878) was president of American Express 1850-1868. Cursed with a severe stutter, and visited a speech therapist in Rochester, NY. With his therapist's and his own methods, he traveled widely to give classes to help others with stuttering. But, as he said, "I cured everybody but myself!"



Henry Wells 1805-1878

Stuttering has such a severe impact on the psyche in childhood that it is amazing to me so many stutterers perform so well despite stigmatization. In the past, stutterers got stuck on consonants and stammerers got stuck on vowels. But today, stutterers and stammerers are considered the same. Speech therapists call it a speech fluency disorder. One percent of the world's population stutters. It starts in childhood but thankfully 80% of sufferers resolve by adulthood, especially with speech therapy. Stutterers (sorry, speed fluency disorder patients) do not stutter when speaking alone or when singing.

William Fargo
William Fargo (1818-1881) left school aged 13 to carry mail in his upstate New York town of Pompey. He became president of Amex from 1866 to 1881. See the photo below right.

Together they started two companies. The first, Amex in 1850, merged competing freight companies in the Northeast. In 1852, moving cash and bullion from California to the East Coast was problematic. But their directors objected to expanding there. So Wells and Fargo established a second company, Wells Fargo, for freight and banking for California.

American Express Company (Amex)
Henry Wells and William Fargo founded the American Express Company, a joint stock corporation in Buffalo, NY in 1850. Each previously owned similar cash transit companies. In 1854, Amex, headquartered in Manhattan, almost monopolized the express shipment trade. They shipped goods, securities, and money throughout New York State. Over the years, they moved between several different buildings in Manhattan.

They networked with other companies, including Wells Fargo, railroads, and steamships. In 1857, they launched a money order business which, like all their businesses, competed with the post office.

While traveling in Europe, Fargo found that his bank's letters of credit only worked in large cities. So he invented traveler's checks in 1891, which circulated worldwide.

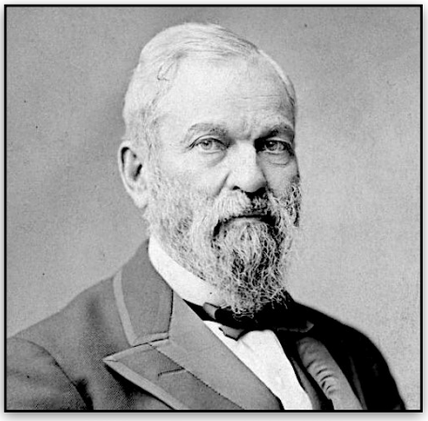
During the First World War, the Interstate Commerce Commission halted their express business. Amex reformed as the American Railway Express Co. in 1918. Back then, they had 10,000 offices and 30,000 employees.

In 1950, the Diner's Club card appeared. The Amex card followed suit in 1958, charging more for their card — a strategy called upselling, to make the customer feel the card was a premium card. In 1966, they introduced their gold card.

In 1979, in the era of diversification, they bought 50% of Warner Communications Cable Company. Then in the 1980s, they bought Shearson, to become a financial service company, and in 1984, bought Lehman Brothers, who had also bought E. F. Hutton. Amex renamed their investment banking arm Shearson, Lehman, Hutton and Co.

In 1984, Amex introduced a Platinum card by invitation only! Three years later, they introduced their Optima card, their first that did not require payment in full every month. Twelve years later, they issued the outrageous fee and invitation only Centurion Card, called the "Black Card," only for their top customers.

Amex's Black Card (Centurion Card)



William Fargo 1818-1881

Currently, you need to spend over $350,000 a year and have an annual income over $1 million and pay all monthly bills on time for a black card! They charge an initiation fee of $10,000 and an annual fee of $5,000! You can buy your Lear Jet or Rolls Royce with this card as it has no upper spending limit. There are probably less than 20,000 users in the US. When you pull out a black card (Centurion card), you are clearly making a statement!

In the early days, Amex merchant fees of 4% proved so high in comparison with Visa and Mastercard's 1.2%, that businesses started refusing Amex cards! This started in Boston restaurants, humorously called the "Boston Fee Party." But it forced Amex to lower their merchant fees, and market to the masses rather than only to top end clients.

In 1993 and 1994, Amex wisely sold Shearson Lehman, ending their financial services expansion. Lehman later started mortgage securitization, leading to the subprime mortgage crisis. In 2008, Lehman declared bankruptcy with $0.6 trillion in debt, the largest in US history. This sent the economy into a tailspin ending in the Great Recession — the worst since the 1929 Depression.

In 2005, Amex introduced RFID (radio frequency ID) on their cards. NFC or near field communication is similar but allows two-way communication and is now the preferred device on credit cards. The advantage of personal credit cards is that if you lose them, your maximum liability is only $50.

As of 2023, Amex still had 140,000,000 cards in use, each averaging $24,000 in spending per year, representing $3.3 trillion in spending every year. This speaks to the high end of the market. It is the fourth largest credit card company after Visa, Mastercard, and China Union Pay. Today, merchant fees for Visa, Mastercard and Discover average 1.4-2.5%, while Amex runs at 2.3-3.5%. Auction companies charge around 3% to process credit cards, reflecting their costs. Cashless societies cost money!

Wells Fargo
Wells Fargo started in 1852 as a separate company to service the California gold rush. They bought gold and sold paper bank drafts, as well as mailing gold and other valuables.

Later, they evolved into a bank. But in the 2010s, aggressive internal sales goals drove employees to create fake accounts. In 2016, the Consumer Financial Protection Bureau (CFPB) fined them $185 million, and they faced around $3 billion of lawsuits. Consumers seem to cling on, despite their abusive history. But they are one of the "Big Four" banks: Bank of America, Citigroup, JP Morgan Chase, and Wells Fargo.

Personally, I have found small local banks much nicer and have had unsatisfactory experiences with the Bank of America.

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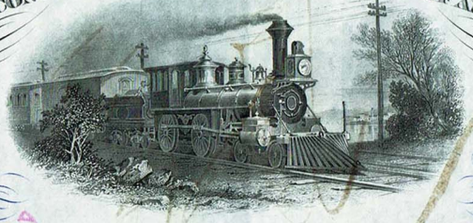
SHARES $100. EACH

Northern Pacific Railroad Company.

ORGANIZED BY ACT OF CONGRESS OF THE UNITED STATES OF AMERICA JULY 2ND 1864.

SHARES $100. EACH



No. B1307 —10— Shares.

COMMON STOCK. COMMON STOCK.

This Certifies that JAY COOKE, Trustee, proprietor of —TEN— full paid Shares of One Hundred Dollars each of the Common Stock of the NORTHERN PACIFIC RAILROAD COMPANY issued in accordance with the Plan adopted at the Bondholders meeting of June 30th 1875; transferable in person or by Attorney on the Books of the Company at the office of the Treasurer, or at any Transfer Agency established by the Company, upon the surrender of this Certificate.

COMMON STOCK

City of New York, [illegible] President.

December 1, 1876. [illegible] Treasurer.

For Value Received, hereby sell, assign and transfer unto [illegible] Ten Shares of the Common Stock of the NORTHERN PACIFIC RAILROAD COMPANY, represented by the within Certificate, and do hereby irrevocably constitute and appoint Attorney to transfer said Stock on the Books of said Company, with full power of substitution in the premises.

Dated 10/6 1879 Jay Cooke

Witnessed by Trustee

(EXTRACT FROM THE PLAN.)

The capital stock of the Company shall be as fixed in the Act of Incorporation, and shall be divided into *Preferred* and *Common*

Preferred stock shall be created and issued to the amount of $51,000,000 (being a majority of the share capital) for the following purposes: to retire the principal of the outstanding 7 3-10 bonds, and the interest thereon due and to become due up to and including July 1st, 1878, at the rate of 8 per cent. currency per annum. And also to retire the principal and interest, to and including January 1st, 1875, of the land warrant bonds; to pay the floating debt, not protected under the existing orders of the court; and, generally, for the purpose of carrying into effect this plan.

The preferred stock shall have all the rights and privileges of the common stock, with the right to vote, and the holders thereof shall be entitled to dividends, not exceeding eight per cent. per annum, as the "*net earnings*" hereinafter defined, in each calendar year, may suffice to pay, and before any dividends shall be paid on the common stock.

After and during the time the income of the road shall be sufficient to pay eight per cent. dividends on both the preferred and the common stock, the surplus shall be divided on both alike per share, according to the number of shares issued of each.

The preferred stock shall be convertible at the par value into any lands belonging to the Company, or hereafter belong to it, east of the Missouri river in the State of Minnesota and in the Territory of Dakota, until default shall be in some of the provisions of the new first mortgage bonds, hereinafter provided for, and such conversion shall be an extinguishment of such stock. The proceeds of all sales of such lands, until such default, shall be used likewise in extinguishment of such stock.

The words "*net earnings*," as used above, shall be construed to mean such surplus earnings of the said railroad as shall remain, after paying all expenses of operating the said railroad and carrying on its business, including all taxes and assessments and payments on incumbrances, and including the interest and sinking fund on the first mortgage bonds, the expenses of repairing or replacing the said railroad, its appurtenances, equipments or other property, so that the same shall be in high condition, and of providing such additional equipment as the said Company shall deem necessary for the business of said railroad.

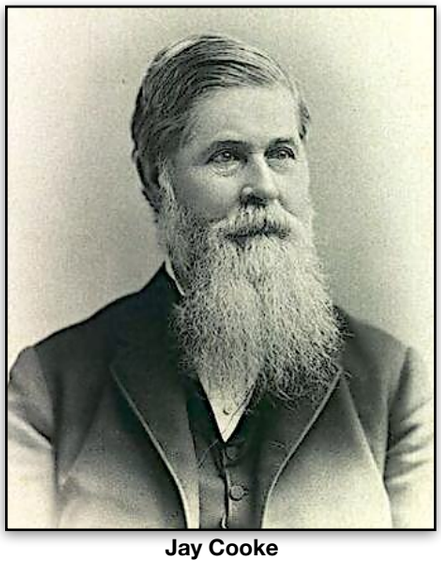
Common stock shall be issued to the amount authorized by the charter, less the amount of $51,000,000 of preferred stock. The holders of the common stock shall not have the right to vote on it, until on or after July 1st, 1878. The holders of this stock shall only be entitled to dividends in each year, at the discretion of the Board of Directors, when the *net earnings*, as heretofore defined, exceed an amount sufficient to pay interest and sinking fund on the mortgage debts, and eight per cent. on the preferred stock. Certificates of this [common] stock shall be issued to holders of, or to those now entitled to, certificates, share for share; and the residue ratably to those originally entitled thereto, or their assigns.

said Company, with full power of substitution in the premises.

Dated 10/6 1879 Jay Cooke

Witnessed by Trustee

Jay Cooke 1821-1905, sold Civil War bonds #2303

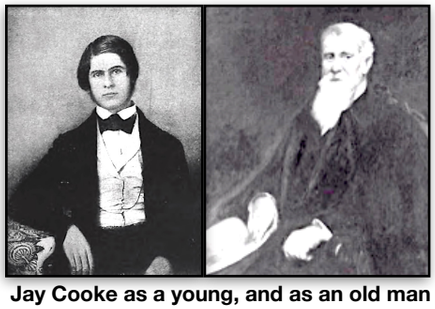


Jay Cooke

Jay Cooke and the first wire house firm
In the world of finance, Jay Cooke was one incredible character. More than anyone else, he helped to finance the Union cause by selling Union bonds during the civil war.

But he also organized the first full services investment company across America. In times past, they called them "wire house firms". The term started in the early 1900s when they used telegraph to connect their offices, share market information and execute trades efficiently. But today it means a full service nationwide brokerage firm.

Born 1821 in Sandusky, Ohio, his father, a lawyer and Whig member of Congress, failed in business. Jay had to go to work young. Aged 17, he joined the banking house E. W. Clark & Co. as a clerk. Four years later, he became a partner. Aged 37, he was able to retire. But he could not sit still, so opened his own banking house, Jay Cooke & Co. aged 40, in 1861, which also employed his sons.



Jay Cooke as a young, and as an old man

Jay Cooke finances Union during Civil War
Cooke helped Salmon Chase get his job as Secretary of the Treasury on March 7, 1861. Five weeks later, on April 12, 1861, the American Civil War began. Chase, unable to sell enough Union bonds to finance the war, got Cooke to sell them.

That year, Cooke floated a three million dollar loan to Pennsylvania. To put this in perspective, as a percentage of GDP then and today, this was equivalent to $16 billion.

He was so good at selling bonds that a year later, Chase engaged him to sell half a billion dollars of bonds called "five-twenty" bonds. This meant the bonds were callable in five years and matured in 20 years. The Treasury had not been able to sell these bonds. But Cooke (with a 0.375% sales commission) appointed 2,500 sub-agents to travel the country and did an amazing job.

GDP was $5 billion that year. So they had asked Cooke to sell one-tenth of the GDP in bonds! In 2024, that would be like getting someone to sell $3 trillion in bonds!

In 1865, the Union, pressed for money, could not sell their "seven-thirty" bonds, and they again turned to Cooke. Within six months, he sold $830,000,000 worth of bonds to finance the war against the Confederacy.

From 1861 to 1865, the US government paid him $7 million to sell a total of $2 billion worth of bonds, (40% of annual GDP)! His ability was spectacular!

But people got jealous of his profits. They complained he made too much money. Of course, we are all jealous of others who make lots of money. But one has to ask the more important question: what was more important? That the Union prosecuted the Civil War, or that the only person who could finance it was paid 0.375%?

His brother was a newspaper editor. And Jay excelled at pushing patriotism via his connections with newspapers. He influenced editors to write long editorials praising buying bonds. He also ran extensive advertising in the news media, similar to a social media and TV advertising blitz today.

His company, the equivalent of today's UBS, Morgan Stanley, or Merrill Lynch, was wildly successful.

National Banking starts during Civil War
When Jackson became president in 1828, he felt the federal Bank of the United States wielded too much power. Its charter expired in 1836. So, Jackson vetoed its recharter and put all the money into his "pet banks." The state banking era then became a free for all, overflowing with corruption and inefficiency.

In 1863, the Union passed the National Banking Act to close state banks. They taxed all state bank printed currency at 20%, spelling the end of the state banking era. Instead, the government introduced the much needed national banking system. Cooke quickly opened two national banks, in Philadelphia and in Washington, DC.

Cooke's designs for the Northwest
But Cooke had other plans, too. The Northern Pacific Railroad operated from Minneapolis to the Pacific northwest. Abraham Lincoln signed an Act in 1864, giving 62,000 square miles to the railroad to open land in the Northwest. Much of the route followed Lewis and Clark's route from the Missouri River west. The railroad used the land as collateral to raise money in Europe.

Construction started at both ends in 1870. The Railroad then engaged Jay Cooke to bring money to the table.

Jay Cooke thought he could develop the Northwest. He wanted to create a "new Chicago" in Tacoma, Washington. He saw it as a major hub for the western terminus of the Northern Pacific Railway, that could do business via the Great Lakes with Europe. He also had a "thing" about Duluth, Minnesota, thinking it would become another hub. Obligingly, he invested $100 million of his own money in the Northern Pacific Railroad.

But Cooke found it difficult to sell bonds in Europe and overextended his financial house. Native Americans constantly attacked surveyors and construction teams and the US government had to send 600 soldiers under General Winfield Hancock to protect them.

Cooke goes bankrupt
Construction proceeded well from 1870 to 1873. But Northern Pacific underestimated the cost of construction, and in 1873, Cooke went bankrupt. At the same time, a European depression made European investors sell off US stock, depressing its value, and halting the US railroad boom. This contributed to a worldwide recession from 1873 to 1879 (the Panic of 1873). The US 1873 Coinage Act started a de facto gold standard, thus depressing silver prices and curtailing silver mining. And the 1875 Resumption of Specie Act further decreased the money supply.

George Stephen and Donald Smith, Canadian financiers who built the Canadian Pacific Railway, then bought out Cooke's shares for pennies on the dollar.

The ITASB certificate
Opposite is a Northern Pacific Railway Company certificate issued to and signed by (ITASB in the scripophily trade) Cooke. In 1876, he bought 10 shares of $100 each, probably one of thousands. He sold this one in 1879.

Jay Cooke's mansion in Ogontz, Philadelphia

But by 1880, Cooke repaid all his debts after a fortuitous investment in a Utah silver mine.

He lived another 25 years and died in Philadelphia aged 84. A devout Episcopalian, he regularly gave a 10% tithe to the church. But his fortune never recovered. As J. P. Morgan once said, "Even a fool can make a million dollars, but it takes a sage to hold on to it."

He married Dorothea Allen, with whom he had four children. The newspapers gave his cause of death as "general debility". And in 1905, 83 was a grand old age to live to.

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100 SHARES
AMERICAN BANK NOTE COMPANY, NEW YORK
B10572
B10572
MISSOURI, KANSAS AND TEXAS
RAILWAY COMPANY.
100
100
SHARES $100 EACH
SHARES $100 EACH
This is to Certify that
Robins & Robinson
are the holders of One Hundred Shares of the Capital Stock
of the Missouri Kansas and Texas Railway Company transferable only on the books
of the Company by the said stock holder in person or by Attorney on surrender of this Certificate.
In Witness whereof the said Company has caused this Certificate to be signed by its President
and Secretary this 18th day of Sept 1880 at the City of New York.
Secretary
President
100
SHARES
Union Trust Company of New York
REGISTRAR
Secretary
TRUST CO. of N.Y.
CANCELLED
FEB 3 1881

CERTIFICATE FOR NOT MORE THAN 100,000 SHARES
CERTIFICATE FOR NOT MORE THAN 100,000 SHARES
NUMBER
NY83443
SHARES
400
COMMON
PAR VALUE $5
COMMON
PAR VALUE $5
M-22599
MISSOURI PACIFIC CORPORATION
INCORPORATED UNDER THE LAWS OF THE STATE OF DELAWARE
THIS CERTIFICATE IS TRANSFERABLE IN THE CITY OF NEW YORK OR IN THE CITY OF ST. LOUIS, MISSOURI
CUSIP 606191 10 4
WILLIAM B CHAPIN
*400*****
400**
400
****400**
*****400*
FOUR HUNDRED
This Certifies that
is the owner of
SEE REVERSE FOR CERTAIN DEFINITIONS
FULL-PAID AND NON-ASSESSABLE SHARES, OF THE COMMON STOCK
of Missouri Pacific Corporation transferable in person or by duly authorized
attorney upon surrender of this certificate properly endorsed. This certificate is not valid unless
countersigned by the Transfer Agent and registered by the Registrar.
Witness the seal of the Corporation and the signatures of its
duly authorized officers.
Dated MAY 14 1981
Paul J M Rutterer
SECRETARY.
D B Jenks
CHAIRMAN OF THE BOARD.
MISSOURI PACIFIC CORPORATION
CORPORATE SEAL
1928
DELAWARE
REGISTERED: MANUFACTURERS HANOVER TRUST COMPANY, REGISTRAR.
BY
AUTHORIZED OFFICER.
COUNTERSIGNED: MORGAN GUARANTY TRUST COMPANY OF NEW YORK
TRANSFER AGENT.
BY
AUTHORIZED OFFICER.
AMERICAN BANK NOTE COMPANY.

Jay Gould 1836-1892, the rapacious financier #2431

Jay Gould owns Missouri Pacific
Jay Gould (1836-1892), was a rapacious financier and one of the unscrupulous "robber barons" of nineteenth century US capitalism (an era Mark Twain called "the gilded age"). From 1879 until he died in 1892, he controlled the Missouri Pacific Railway (MP), nicknamed MoP or MoPac (the lower certificate on the left).

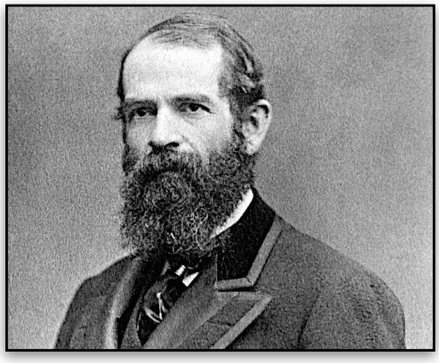
The Missouri Pacific was the first railroad west of the Mississippi River. In 1851, St. Louis started the Pacific Railroad to build west of the Mississippi River, though the Civil War (1861-1865) interrupted their building. In 1872, the railroad reorganized as the MP.

Gould recognized early that MP was expanding westwards, and that this threatened to compete with the Union Pacific, which he also owned. The robber baron's standard way to thwart competition was to buy a controlling interest in it.

This was in the days when monopolies were legal. In 1887, Congress instituted the Interstate Commerce Commission. This made it illegal for companies that did business in more than one state to be a monopoly. The Sherman Anti-Trust Act of 1890 further strengthened this legislation.

Gould's youth
As a young lad, Gould told his father he did not want to continue the family tradition of farming. So, his father simply left him at a nearby school under the care of the school principal. But Gould was self-motivated. He studied surveying and math. Aged 20 he published *History of Delaware County, and Border Wars of New York*.

Shortly after, he partnered with a certain Mr. Zadock Pratt in a tanning business. Gould bought him out, then partnered with a Charles Leupp, a leather merchant, until the Panic of 1857. Gould bought him out, too. Panics or recessions in those days enabled people with money to buy things up at rock-bottom prices.



Jay Gould 1836-1892

At 21, Gould met Daniel Miller, who introduced him to the railroad industry and stocks. Two years later, Gould bought controlling stock of the Rutland and Washington Railroad and continued to speculate in stocks. Three years later he married Miller's daughter, Helen. That same year, the Rensselaer and Saratoga Railroad appointed him as manager.

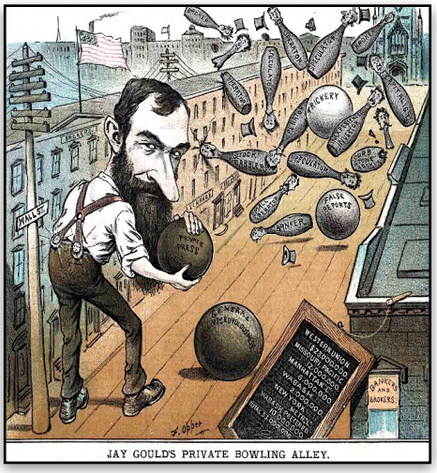
Gould tries cornering the gold market
Ever the manipulator, he began buying up gold in 1869, trying to corner the market. Why? Gould had approached Abel Corbin, a small-time speculator, who had married President Grant's sister, Jennie. Gould thought he could get inside information from Corbin about gold prices. He bought up gold at low prices, hoping to corner the market.

President Grant realized his trickery and flooded the market with gold to lower prices further on Black Friday, September 24, 1869. Gould got out only just in time.

Favored by New York Senator Tweed, the "Boss" of Tammany Hall (the Democratic Party-political machine), Gould narrowly escaped prosecution, but lost a fortune in subsequent lawsuits on the matter.

Gould manipulates stock in the Erie War
In 1868, Jay Gould, James Fisk and others manipulated stock in the Erie Railroad. As a result, Gould became Erie President. This was called the "Erie War".

In 1873, as Erie president, Gould tried to take control of the Erie Railroad. He bribed Lord Gordon-Gordon of Scotland (whom he believed was wealthy) with $1 million of stock. But Lord Gordon-Gordon turned out to be an impostor and cashed in the stock immediately! Gould sued him. So, Gordon-Gordon fled to Canada. Gould then tried unsuccessfully to force Canada to give him up. Then Gould tried to have Gordon-Gordon kidnapped! That also failed! The newspapers had a heyday publicizing the debacle! Gould lost any chance of taking over the Erie Railroad.



Media's view of Gould using the stock market as his private amusement arcade

Having been ejected from the Erie Railroad, he bought controlling stock in the Union Pacific (UP) during the Panic of 1873 (read recession of 1873-1879). He managed UP expertly with his encyclopedic knowledge of its workings. Railroads could be very profitable back then. Although Gould made money playing the stock market, he also made money from railroads.

In 1879, Gould also bought controlling stock in the Missouri Pacific. Four years later, he left Union Pacific management, taking a huge cash profit though he still controlled the railroad. This helped him to buy controlling stock in Western Union.

Western Union, Missouri Pacific and Union Pacific were all in the 1884 Dow Jones Transport Average. Today this would be like Bill Gates controlling three companies — Microsoft, Alphabet and Apple!

In 1889, Gould organized the Terminal Railroad Association of St. Louis. This was pure nastiness. He knew he could create a bottleneck for East-West traffic, which he controlled.

Three years later, he died from tuberculosis. He had amassed a fortune of $72 million. Of his eight children, one son George took over Missouri Pacific. But within a year it declared bankruptcy during the Panic of 1893 (recession).

What happened to MP
Continuing with the story of MP: After the 1893 bankruptcy under George, MP reorganized. It declared bankruptcy again in 1915. Then in 1919, it merged with SLIMS (St. Louis, Iron Mountain and Southern Railroad). It then changed its name from the Missouri Pacific Rail**way** to the Missouri Pacific Rail**road.**

In 1933, MP again went bankrupt, as did many railroads during the great depression. But in 1956 MP again reorganized. Good Lord! How many times can a company go bankrupt? In 1961, MP President Downing Jenks (who signed the certificate opposite) pioneered computer guided rail technology. By 1970, MP carried 27 billion freight ton-miles, and by 1980, they owned 11,469 miles of track and 1,500 locomotives.

In 1982, Union Pacific, though smaller than MP, bought MP. The merger only became official fifteen years later after they had satisfied all bondholders. Union Pacific also bought the Western Pacific Railroad. Today MP, UP and Western Pacific are all under a holding company, the Union Pacific Corporation Holding Company, capitalized today at $150 billion.

The Certificates

Signature of Jay Gould on Missouri, KS & Texas RR, 1880 stock certificate

I show Jay Gould's signature above from the top certificate. In the MP vignette, one man hods a torch, the other holds a caduceus. The torch symbolizes hope. The caduceus is the attribute of the traveling messenger god, Hermes in Greece (Mercury in Rome).

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CHICAGO CERTIFICATE

No. 3724

52 SHARES

PULLMAN'S PALACE CAR COMPANY

INCORPORATED BY SPECIAL ACT OF THE LEGISLATURE OF THE STATE OF ILLINOIS, A.D. 1867.

Discharged from Agency SEP 21 1917

This is to Certify that Marshall Field

is entitled to Fifty-two Shares of the Capital Stock of Pullman's Palace Car Company, transferable only on the books of the Company at its office in the City of Chicago, in person or by attorney, upon the surrender of this Certificate.

In Witness Whereof, the President and Secretary of said Company have hereunto subscribed their names this Sixteenth day of November 1881

A. Weis Rice Secretary. Horace Porter Vice President.

SHARES $100 EACH

American Bank Note Co. New York.

CERTIFICATE FOR LESS THAN ONE HUNDRED SHARES

INCORPORATED UNDER THE LAWS OF THE STATE OF NEW JERSEY.

No. A 44564 CAPITAL STOCK $ 60,000,000. — 3 — Shares

PREFERRED STOCK $30,000,000. COMMON STOCK $30,000,000.

American Car and Foundry Company

THIS IS TO CERTIFY THAT SHARES $100 EACH

Mary D. House

THREE

is entitled to shares of the Preferred Capital Stock of American Car and Foundry Company transferable only on the books of the Company by the holder hereof in person or by duly authorized Attorney, upon surrender of this certificate, properly endorsed.

The holders of this Preferred Stock are entitled to receive out of any and all surplus net profits, whenever declared by the Board of Directors, non-cumulative dividends at the rate of not to exceed seven per centum per annum for the fiscal year beginning on the 1st day of March, 1899, and for each and every fiscal year thereafter payable in preference and priority to any payment of any dividend on the Common Stock for such fiscal year.

In the event of the dissolution of the corporation, the holders of the Preferred Stock are entitled to receive the par value of their Preferred shares out of the surplus funds of the corporation, before any payment shall be made therefrom to the holders of the Common Stock.

This certificate is not valid until countersigned by the Registrar.

Dated Jersey City, N. J. JUL 3 1917

Assistant Treasurer. Vice President.

Guaranty Trust Company of New York, Registrar

Transferred on the books of the Company this 10 day of JUL 1917

SECRETARY

APR 26 1918

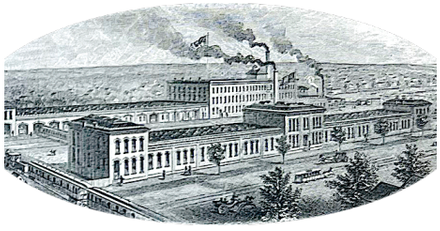
GUARANTY TRUST CO. OF N.Y.

1 2 3 4 5 6 7 8 9 0

1 2 3 4 5 6 7 8 9 0

Pullman's Palace, his strike, and successor, ACF #1904 & #1977

George Pullman's railway car factory
With the US rail's vast network and an expanding economy, America needed railroad cars, especially for specialty transport. The first railroad car company in the US, the Pullman Coach Company, became an institution. Started by George Pullman, they invented folding sleeping berths in luxury passenger cars with washrooms for men and washrooms for women in each car. Not only that, Pullman operated it as a full service. They hired porters who travelled on the trains with the passengers. The porters made and pulled down the beds, carried baggage and provided services (room service from the dining car, shining shoes, valet, sending and receiving telegrams, etc.).



Vignette of Pullman Co. from stock certificate

At its peak in 1929, Pullman slept 150,000 passengers every night using 15,000 porters. The porters, almost all African American, enjoyed one of the few lucrative positions of the era.

A Pullman car 1910-20, the bunks pulled down and the sofas converted into beds.

George Pullman built his first car in 1859. He established his company in 1862 in a Chicago suburb now called Pullman, where he built a model town for his employees. Cars had patented "paper" car wheels. They insulated the wheels from the hub with compressed paper, which significantly quietened the ride.

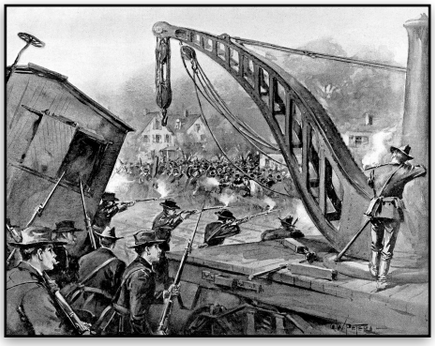
Bitter 1894 Pullman strike
During the Panic of 1893 (i.e., the recession which lasted until 1897), Pullman had a bitter strike. Today, we are used to recessions, buffered by social programs, but at the time it was the worst depression to date in US economic history. Unemployment hit 25% in Pennsylvania, 35% in New York and 43% in Michigan. GDP dropped 10% from 1892 to 1894, and the Dow Jones tanked 24% in a single day.

In 1894, beset by economic difficulties, George Pullman cut worker's already low wages by 25%, but did not reduce their rents at his company town. Despite 16-hour workdays, many were starving. When workers tried to meet Pullman, he fired them and closed the plant.

The American Railway Union had already successfully struck against the Northern Railway Company a month before in April 1894. This Union also represented 35% of Pullman workers, and they had its other members refuse to hitch any Pullman cars on any lines. And they correctly predicted those lines would fire those hitch-men and replace them with nonunion workers, spawning increasing solidarity walk outs. Railroads then employed only nonunion workers.

Pullman repeatedly turned away all spokesmen. Within four days, 125,000 men on 29 railroads struck. The Union head, Eugene Debs, constantly counseled restraint, but the men were becoming violent. But unfortunately, crowds derailed a locomotive attached to a US mail train. Just three days later, faced with violence and a derailed US Mail train, President Cleveland's cabinet voted to send in federal troops.

Illinois Governor Altgeld opposed this as he had already sent state troops to quell rioting and clear the way for trains. Strikers were furious with the federal troops and obstructed them and destroyed railcars. The14,000 troops and police seemed impotent. Then, on July 7, troops fired into a mob, killing 4-30 people.



National guardsmen firing on mob during Pullman strike

A month later, Pullman finally rehired the strikers, but only if they swore never to join a union. Pullman had lost many millions, which he could afford. The strikers had lost around $1 million in wages, which they could ill afford. But the fierce riots, anarchy, and rail interruptions made the public ant-worker. Cleveland, trying to mollify organized labor, designated Labor Day as a federal holiday.

Pullman also made private railway cars — today's equivalent of corporate jets. After Pullman died in 1897, Lincoln's son, Robert, took over as Company President. After the Second World War (1939 to 1945), automobiles and plane travel displaced Pullman's service. Pullman folded in 1968.

The Pullman Certificate to Marshall Field
The Pullman stock certificate is made out to Marshal Field (1834-1906) of Chicago department store fame. The book *The Wealthy 100* ranks him 10th. He invested in downtown Chicago land around 1860 and built what became the largest department store in the world, spanning 73 acres on 13 floors! With sales of $68 million a year, he could invest in many other companies. He introduced fixed pricing, free returns, and said, "Give the Lady What She Wants!"

But his personal life was unhappy. His wife and two children chose to live abroad, and his son shot himself. He left land for the University of Chicago and $9 million to establish the Field Museum in Chicago.

American Car Foundry
Many other railroad car companies made cars, not just Pullman. Thirteen of them, that had started up between 1864 and 1892, and made 53% of all railroad cars in 1898, merged. They

Marshall Field

formed the American Car and Foundry Company (ACF) in 1899. The word car did not mean automobile. Autos hardly existed then! Two of the companies came from Missouri, the rest from Union states.

Within three years, ACF acquired three other companies. They invested $3 million in the Berrick, PA, plant, formerly Jackson and Woodin Co., and started regular production of the first all-steel cars in the world in 1904. Steel cars lasted much longer — there was no wood to rot. They did not need painting; steel was less of a fire risk and looked more modern. They became the standard for passenger cars. Previously, they made cars of wood over an iron chassis over bogies.

Bogeys (also spelled bogies) allowed cars to follow railroad tracks more closely. They distributed car weight over eight wheels instead of four, and their springs made them more comfortable to ride in. Bogies are why train platforms are elevated.

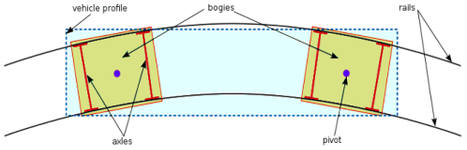


Illustration of how bogies work

ACF joined the DJIA in 1902, and became part of the new DJIA 20 in 1916, lasting until 1927. As time went on, they acquired other railroad car manufacturing companies. During the First World War, they made gun mounts, boats, and ammunition.

In 1922, ACF started building auto carburetors. From 1925 to 1954, they manufactured motor coaches and trolley coaches. During the Second Word War, they made tanks, completing over 1,000 tanks before Pearl Harbor. In 1954/5, they changed their name to ACF Industries.

In 1977, the Southern Pacific Railroad started double stack intermodal shipping. Intermodal means multiple modes of transport (e.g., ship, rail, truck) without handling the freight itself when changing modes. This needed a 40-foot stretch between bogies with a lowered base to accommodate two containers on top of each other. ACF also made these cars.

Containers, starting in 1956, revolutionized freight transport. They are normally eight feet wide, eight and a half feet tall, and 40-feet long. They also come 8-feet, 10-feet, 20-feet and 53-feet long.

The investor, Carl Icahn, bought ACF Industries in 1984. By 1997, ACF owned 46,000 railcars, which it leased mainly to GE Capital Railcar. ACF still manufactures railroad cars, including specialized hoppers, toxic liquid containers, and pressurized containers, e.g., for LPG.

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https://en.wikipedia.org/wiki/Pullman_Strike

UNITED STATES OF AMERICA

FOR VALUE RECEIVED,

THE

New York Central and Hudson River Railroad Company

HEREBY GUARANTEES THE PUNCTUAL PAYMENT OF THE PRINCIPAL AND INTEREST

of this bond at the time and in the manner therein specified, and covenants, on default in payment of any part thereof by the obligor, to pay the said principal and interest of this bond as the same shall become due upon the demand of the holder hereof.

In Witness Whereof, the said Company has caused its corporate seal to be hereto affixed and attested by its Secretary, and this instrument to be signed by its President or one of its Vice Presidents, this 30 day of June A.D. 1886

Attest New York Central and Hudson River Railroad Company.

by

Edwards Secretary. C. C. Clark Vice President.

1000

No 451

ONE HUNDRED YEAR FOUR PER CENTUM FIRST MORTGAGE BOND

ISSUE LIMITED TO $4,000,000.

PRINCIPAL DUE FEBY 1st A.D. 1986

Interest payable semi-annually on the first days of February and August.

For Value received the **NEW JERSEY JUNCTION RAILROAD COMPANY** promises to pay to

J. Pierpont Morgan and Harris C. Fahnestock, or bearer, **One Thousand Dollars** at its office in the City of New York, on the first day of February, A.D. 1986, and on presentation and surrender of the annexed coupons, as they shall severally become due, to pay interest on such principal sum at the rate of **four** per centum per annum, payable semi-annually on the first days of February and August in each year, at the said office, until such principal shall be paid. This bond is one of an issue of coupon and registered bonds of like tenor, to an amount not exceeding in the aggregate Four Million Dollars, all of which are equally secured by a mortgage or deed of trust bearing date the Thirtieth day of June A.D. 1886, made by said Railroad Company to J. Pierpont Morgan and Harris C. Fahnestock, as Trustees, conveying its franchises, railroads and equipment and other property described in said mortgage or deed of trust upon the terms and conditions therein set forth. The holder of this bond may at any time convert it into a registered bond of the same issue, at the office of said Railroad Company in the City of New York. If default be made in the payment of any interest on any of said bonds, the principal hereof may be made due and payable as provided in said mortgage or deed of trust. This bond shall not be valid until the certificate endorsed hereon shall have been signed by the Trustees under said mortgage or deed of trust.

In Witness Whereof, the New Jersey Junction Railroad Company has caused its corporate seal to be hereto affixed and attested by its Secretary, and this bond to be signed by its President, and has hereto attached coupons with the name of its Treasurer engraved thereon, this Thirtieth day of June A.D. 1886.

NEW JERSEY JUNCTION RAILROAD COMPANY,

ATTEST by

Wm. Jones Secretary. Josiah H. Reed President.

American Bank Note Co. New York.

STATE OF NEW JERSEY

TRUSTEES CERTIFICATE.

This bond is one of the issue of bonds within mentioned and also described in the mortgage or deed of trust dated the Thirtieth day of June, A.D. 1886, executed by the New Jersey Junction Railroad Company to the undersigned, and the holder hereof is entitled to the benefit of the trust thereby created.

J. Pierpont Morgan

H. C. Fahnestock

Trustees

NEW JERSEY Junction Railroad Co.

451

$1000

ONE HUNDRED YEAR

PER 4 CENT

FIRST Mortgage Bond

PRINCIPAL AND INTEREST

GUARANTEED BY THE

New York Central and Hudson River Railroad Co

Interest payable

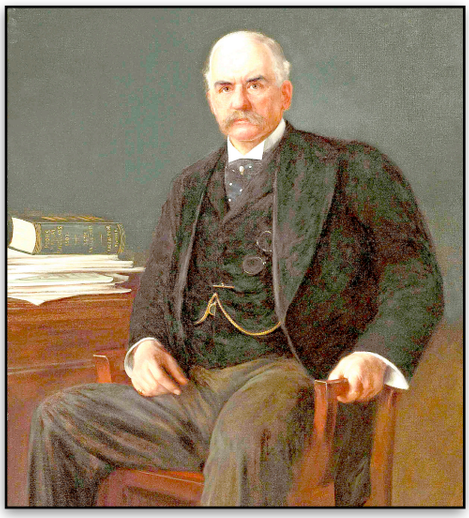
1st FEBRUARY & 1st AUGUST

IN THE CITY OF NEW YORK.

PRINCIPAL DUE

1986.

JP Morgan 1837-1913, the financier who saved the country #1903



John Pierpont Morgan 1837-1913

The certificate signed by JP Morgan
The stock certificate opposite shows Morgan's signature on the top line on the back (shin below opposite). In 1886, a larger railroad company (the New York Central and Hudson River) guaranteed the 4% interest payments of a smaller railroad company (New Jersey Junction) for 100 years. The guaranteeing company later became the New York Central, then the Penn Central, who filed for bankruptcy in 1970. The $1,000 bond was made out to JP Morgan and Harris Fahnestock or bearer. Both endorsed the bond, and whoever the bearer was, they clipped coupons until the 169th coupon due in August 1970. That year the Penn Central went broke. They only punch and hole canceled it (see top right of bond) 12/13/78!

JP Morgan
Here is a story I love about JP Morgan. One day, a group of top investors gathered round him and asked what would happen in the stock market. He replied, "It will vary!" America's greatest banker, he helped transform America's economy into the modern age. Aged 15, he got rheumatic fever, which took him a year to get over. As a teenager, his father sent him to Switzerland to learn French. Then he sent him to the University of Göttingen, where he became fluent in German and got a degree in art history in only six months. He was a polymath.

Aged 21, he joined his father, a partner in a merchant banking firm George Peabody. In the US, we now call merchant bankers investment bankers. A year later, he became his father's representative in New York City.

Three years later, he opened his own office within months of the outbreak of the Civil War. His previous cotton dealings evaporated and his father's foreign transactions became his principal business. Unfortunately, he (probably unknowingly) loaned money to an attorney arms dealer, whose profits led to criticism called the Hall Carbine Affair.

In 1864, his father took over the Peabody company under his own name, JS Morgan. His son, JP Morgan, dealt in securities and commodities. JP Morgan started the next year, with Peruvian guano (bird poop) to sell as fertilizer. In 1871, Morgan's father got Anthony Drexel to mentor him as Drexel Morgan & Company. They dove heavily into European investment into US securities, especially railroads, which he streamlined to increase efficiency. Drexel died in 1895 and Morgan renamed his company JP Morgan.

America's Coinage Act of 1873 stopped fixing the ratio of gold to silver prices. But in the 1880s, a glut of silver led to a public demand to return to bimetallism, rather than the de facto gold standard. Soon, the 1890 Sherman Silver Purchase Act mandated the government buy 4.5 million ounces of silver a month, paid for with paper money convertible to gold. Silver mining interests converted that money to gold, draining US gold reserves.

In 1893, a railroad bubble culminated in the failure of the Philadelphia and Reading Railroad. A depression in London also made foreign investors sell US stock to get gold. Likewise, US consumers led a run on banks, leading to bank failures. Further railroads failed, including the Northern Pacific and the Union Pacific.

In 1893, over 15,000 companies and 500 banks failed. Stocks crashed, unemployment peaked, and business activity fell by 37%. GDP dropped by 10% over two years and gold reserves fell to a dangerous low. President Cleveland was blamed for all of this, so his Democratic Party nominated William Jennings Bryan for the 1896 election.

Morgan and 1895 gold crisis
Despite a glut of silver, there was no equivalent increase in the gold supply. By February 1895, US gold reserves stood at $42 billion, way below the legally required $100 billion. The US government tapped JP Morgan, who persuaded foreigners to buy Treasury bonds with gold, by networking with his father's company, and A. Belmont & Co., agents for the Rothschilds. The Syndicate bought $65 billion of gold, averting the crisis.

In 1900, Frank Baum published The Wizard of Oz. Most think of it as a fairy tale, but libertystreeteconomics.newyorkfed.org says it, *"…can be read as an allegory for the gold versus bimetal battle. Dorothy lives on a farm, impoverished by falling prices. The cyclone is the free silver movement carrying Dorothy to the East, where she follows a yellow brick road (the gold standard) to meet the all powerful Oz (ounce of gold). The Wicked Witch of the East (Cleveland) dies, leaving only magical silver slippers. Along the way to the Emerald City (Washington, D.C.), Dorothy meets the Scarecrow, representing the western farmer, who thinks he needs a brain but is actually smart enough to understand the debate over silver. The Tin Man is the working man, whose unemployment has caused him to lose his heart and to have rusted. The Cowardly Lion is Bryan himself, who roared at the convention with his Cross of Gold Speech, only to reverse and downplay silver in the 1900 campaign."*

America's history of bimetallism versus the gold standard is complex. Most modern observers (and JP Morgan) favored the winners — the gold bugs, but interestingly, Milton Friedman espoused bimetallism. He felt this would have increased the money supply, sidestepping the greater evils of deflation. As a monetarist, he felt the money supply was the primary factor influencing any economy's growth, contraction, and demand,

Morgan's corporate reorganizations
In 1900, Morgan started merging US steel companies, forming US Steel, the first company worth over $1 billion, which I deal with in a later section. He also formed GE.

In 1902, Teddy Roosevelt ordered his Attorney General to apply the Sherman Antitrust Act to block Morgan's Northern Securities Company (a railroad merger). Morgan lost no money, but he lost reputation.

That year, he merged several American and British shipping companies to form International Mercantile Marine Co. (IMMC) to dominate Atlantic shipping. It owned the White Star Line, including the Titanic, which sunk in 1912. Morgan booked a luxury suite on the Titanic, but later changed his plans. IMMC was over-leveraged and later defaulted on bond payments. In 1915, IMMC went into receivership and was reorganized.

Morgan had rhinophyma, a condition that causes a purple, puckered, bulbous, wobbly nose. It embarrassed him no end.

In 1907, another depression (The Banker's Panic) loomed. The Secretary of the Treasury made $35 million available to deposit in the banks. Morgan then met with leading financiers and forced them to come up with a plan.

But a brokerage firm, Moore and Schley, used $6 million of (Tencoal)* stock for collateral to banks. But the stock was illiquid. Morgan then merged Tencoal with US Steel to provide the liquidity, but faced antitrust legislation. So Morgan met in private with Teddy Roosevelt, who promised him immunity, again saving the day.

Morgan loved huge Cuban cigars called Hercules' Clubs. His doctor pleaded with him to cut down. Morgan agreed. He said he would reduce to only 20 cigars a day!

Another financier once asked him how much it cost to have a private yacht. Morgan replied, "If you have to ask, you can't afford it!" When he died, he left $100+ million.

He was a great collector of books and art. His library is on display at his New York mansion.

From 1890 to 1913, Morgan underwrote or reorganized 42 major corporations. Akin to a modern bank, he thus had an oversized influence on US industry over that period.

* "Tencoal" was Tennessee Coal, Iron and Railroad Company

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INCORPORATED UNDER THE LAWS OF THE STATE OF NEW JERSEY.

THE EDISON PORTLAND CEMENT COMPANY

180,000 SHARES COMMON STOCK
40,000 SHARES PREFERRED STOCK

Number 34

Shares 1,000.

220,000 SHARES OF $50. EACH.
CAPITAL $11,000,000.

This is to Certify that Thomas A. Edison
is the owner of One Thousand Shares of the
COMMON CAPITAL STOCK
of The Edison Portland Cement Company,
Transferable only on the books of the Company in person or by Attorney on the surrender of this Certificate.

SHARES $50 EACH

In Witness Whereof, the President and Treasurer of said Company have hereunto subscribed their names and the Corporate Seal has been hereto affixed, this nineteenth day of August, 1899.

SECRETARY. Countersigned & Registered The Real Estate Title Insurance & Trust Company, Registrar. By

TREASURER. PRESIDENT.

AUG 25 1899

AMERICAN BANK NOTE COMPANY, PHILADELPHIA.

THE EDISON PORTLAND CEMENT CO.
COMMON STOCK

Certificate No. 34

Number of Shares 1,000.

Issued to Thomas A. Edison

Address

Dated Aug. 19, 1899.

Transfer No.

Received Certificate

Name, Date and Shares as above

Thos A Edison

INCORPORATED UNDER THE LAWS OF THE STATE OF NEW JERSEY.

THE EDISON PORTLAND CEMENT COMPANY

180,000 SHARES COMMON STOCK
40,000 SHARES PREFERRED STOCK

Number 34

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TREASURER. PRESIDENT.

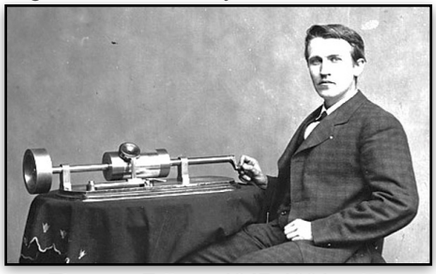
AUG 25 1899

AMERICAN BANK NOTE COMPANY, PHILADELPHIA.

Edison 1847-1931, and how JP Morgan helped him start GE #2095

Edison and the electric light
Every schoolchild knows Edison invented the electric light. Not so! Sir Humphry Davy invented the carbon arc (called the Electric Arc Lamp) in 1802. Factories used it extensively for lighting, but because it was exposed, it often caused fires. Several inventors made electric light bulbs before Edison. De La Rue and Swan made early versions. In 1874, Woodward and Evans patented and made bulbs filled with nitrogen with carbon rods held between electrodes. They sold their patent to Edison in 1879. Opposite is a stock certificate issued to and signed by Thomas Edison, a simple signature.

Edison versus Westinghouse
Edison's phonograph and kinetoscope (progenitor of the movies) were much more popular inventions. But Westinghouse invented a system of transmitting electricity that created an infrastructure, more important than individual inventions. It was multiphase AC, transforming voltage up for long-range transmission, and down for home use. They used steam turbines and hydroelectric power to generate the electricity.



Thomas Edison 1847-1931, with his phonograph invention

The only use for electricity back then was light in the home and electric motors in industry. Electric appliances came later. Just as the Internet today has spawned vast changes in society, so too did Westinghouse's successful electrical distribution system in the 1890s. I consider such infrastructure inventions far greater than smaller individual inventions using that infrastructure, like the electric motor, the light bulb, etc.

Another differentiating point between Edison and Westinghouse was how many US patents they had. Edison had 1,093; Westinghouse had 361. But look under the surface to see why. Westinghouse insisted that any of his employees who developed a patent list it under their own name. By contrast, Edison insisted that any of his employees who developed a patent list it under Edison's name!

When Tesla came to the US to work for Edison, he paid him $18 a week. And he promised him $50,000 if he could redesign and significantly improve the DC system. Within two months, Tesla did just that. When Tesla asked for the money, Edison said he was only joking and gave him a $10 a week raise!

Tesla left. Westinghouse approached him and gave him $60,000 to license his patents, 150 shares of stock, $2.50 royalty per horsepower generated by his AC motor, and $500 a week! Wow! Edison also used mob connections to enforce his movie patents, pushing many early movie pioneers to move to Los Angeles. Edison and Westinghouse were different men!

The late 1800s saw an industrial boom, which Mark Twain called the "Gilded Age" because it was glittering on the outside, but corrupt on the inside. In the late 1880s, Thomas Edison (bankrolled by JP Morgan) battled his former employee Nicola Tesla (now bankrolled by Westinghouse) in the "War of the Currents". Edison thought DC was best. Tesla thought AC was best. The first electric lights adorned New York City in 1882, with their own generating station for DC when gas lamps still lit most homes. Tesla's AC eventually won.

Edison, JP Morgn and GE
Edison had several companies involved in electrical manufacturing, including motors, generators, lamps, sockets, etc. In 1889, JP Morgan merged these companies into Edison General Electric Company. Three years later, they merged with Edison Electric Company of Kansas, and Thomson-Houston Electric Company, to form General Electric. They incorporated in New York.

In 1896, GE became one of the Dow dozen. GE distinguished itself with the longest reign in the DJIA. Walgreens/Boots finally booted them out in June 2018. In the early days of electricity, they only used lamp sockets. If you wanted to use an electric iron, you had to have an adaptor to plug it into a lamp socket!

Initially appliances made people's lives easier with ovens, cookers, washing machines, toasters and irons, etc. Later, other electrical devices entertained people. Today many people, especially millennials, look virtually hard-wired into their smartphones! But entertainment was not always that way.

The history of home entertainment
The nobility, a tiny middle class, and peasants comprised society in medieval times. When their subsistence existence eased off, the middle classes grew, mainly in towns. They were the merchants, professionals, and small manufacturers. They even drove revolutions like the French Revolution in 1789. Back then, people entertained themselves at home by reading, playing cards, collecting, playing musical instruments, and dancing. The only polyphonic instruments (i.e., more than one note at once) in the 1700s were the organ, harpsichord, harp, and lute. Ordinary folks could not afford a harpsichord or organ, and found it difficult to play the lute and harp. The guitar exploded in popularity 1800-1850.

Then in the 1850s, piano production industrialized allowing ordinary folks to own pianos cheaply. Pianos then displaced guitars. People loved playing four-handed piano pieces, often orchestral works transcribed for two pianists on one piano. People also sang and danced to piano accompaniment. Courtship involving closeness and touching actually became possible and respectable in Victorian times. Imagine!

In 1877, Thomas Edison invented the phonograph, but it took until the 1890s for them to become widespread. Edison originally envisaged their use only as dictating machines. But others developed phonographs with high enough fidelity for people to listen to music in their own home.

The phonograph era was from 1895 to the 1920s. You could hear a full orchestra in your own living room! Hundreds of singers made recordings. But who wanted any of them if they could hear Enrico Caruso himself? Recording companies jumped at the chance to use the top recording artists in their fields, who became wealthy. Victor Talking Machine emerged as the pre-eminent phonograph maker. Later, GE's radios and combination radio/phonographs displaced them.

The Battle of the Currents
A little more on the battle of the currents: In 1879, Edison started the Pearl Street generating station in New York City. This lit the streets and supplied electricity to 24 residents (including JP Morgan, Edison's backer). But, DC current needed generators every mile as DC power dropped off quickly.

Westinghouse bought the patents of Gaulard's (French), and Gibbs' (English) AC transformer and studied AC electricity. In 1886, he started the Westinghouse Electric Company initially as a research and development facility. He could power light bulbs with AC, but no practical electric motor existed until Tesla invented one in 1887. Westinghouse and Tesla both knew high voltages travelled further with less loss of power. They could then transform down the voltage for people's homes.

Edison said AC was unsafe. He got the New York legislature to adopt the electric chair instead of hanging criminals condemned to death. Edison said only AC could kill people and tried to introduce the word "to Westinghouse" someone. But it never caught on, instead we use the word "electrocute". The first AC electrocution was in 1890 with Edison's electric chair. It took four minutes of electrocution for the man to die! Westinghouse had focused instead on paying legal fees to free the convict! Edison was just "plain nasty."

In 1889, Westinghouse renamed his company Westinghouse Electric and Manufacturing Company. JP Morgan, who bankrolled Edison, wanted to buy out Westinghouse and merge him with Edison. But Westinghouse was suspicious of financiers and wanted to run his own show. He also hired the first female electrical engineer in the US, Bertha Feicht.

Columbian World's Fair popular electricity building — look at the crowds!

A quarter of the entire population of the US visited the Columbian World's Fair in 1893! Westinghouse bid significantly lower than Edison to light the exhibition. He knew if he was successful, the advertising would work wonders. At the last minute, Edison tried to hobble Westinghouse by saying that his light bulbs were too similar to Edison's and sued him for patent violation. But Westinghouse had bought another patent for the Sawyer-Man lamp and hastily geared up his factories to produce 250,000 bulbs just in time.

Westinghouse's exhibit competed well with Edison's famous GE exhibit. He was right. In 1895, the Niagara Falls Generating Station awarded him the huge contract that powered Buffalo in upstate New York 20 miles away. They used his turbines to turn the generators, which could power a city many miles away — totally out of Edison's league!

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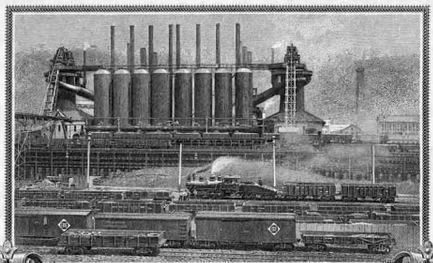
STATE OF NEW JERSEY



100,000 100,000

UNITED STATES STEEL CORPORATION

SERIES A Nº 683 REGISTERED FIFTY YEAR FIVE PER CENT. GOLD BOND. Nº 683 SERIES A

United States Steel Corporation, a corporation created and existing under the laws of the State of New Jersey, and hereinafter termed the "Steel Company," for value received, promises to pay to ANDREW CARNEGIE. or registered assigns, on the first day of April, A.D. 1951, at the office or agency of the Steel Company in the City of New York, the sum of ONE HUNDRED THOUSAND DOLLARS in gold coin of the United States of the present standard of weight and fineness, and to pay interest thereon from the first day of or the first day of as the case may be, next preceding the date hereof, at the rate of Five per cent. per annum, such interest to be payable to the registered holder hereof at such office or agency in like gold coin semi-annually on the first days of January and July in each year. All payments upon this bond both of principal and interest shall be made without deduction of any tax or taxes which the Steel Company, its successors or assigns, may be required to pay, deduct or retain therefrom under any present or future law of the United States or of any state, county or municipality therein. This bond is one of a duly authorized issue of coupon bonds and registered bonds of the Steel Company, the aggregate amount whereof is limited so that there shall never at any one time be outstanding bonds of said issue for an aggregate principal sum exceeding $30,000,000, all of which bonds have been issued or are to be issued, under and in pursuance of, and are to be secured ratably by, and are subject to, an indenture dated April 1st A.D. 1901, duly executed by the Steel Company to the United States Trust Company of New York, as Trustee, under which indenture certain shares of stock and bonds have been deposited with said Trustee and additional shares of stock, bonds and other property hereafter may be deposited with, or assigned, transferred or mortgaged to, said Trustee, and hereby reference is made to said indenture with the same effect as therein fully set forth. No recourse shall be had for the payment of the principal or interest of this bond against any stockholder, officer or director of the Steel Company, either directly or through the Steel Company, by virtue of any statute or by enforcement of any assessment or otherwise, any and all liability of stockholders, directors and officers of the Steel Company being hereby released.

This bond is transferable only in the manner prescribed in said indenture on the books of the Steel Company at its office or agency in the City of New York, upon surrender and cancellation of this bond; and thereupon a new registered bond of the same Series will be issued to the transferee in exchange therefor on payment of the charge provided in said indenture.

This bond is subject to redemption, as provided in said indenture, on the first day of any calendar month after April 1st 1911, by payment of the unpaid accrued interest and the principal of the bond, together with a premium of fifteen per cent. of such principal.

This bond shall not become or be valid until authenticated by the certificate endorsed hereon, duly signed by the Trustee under said indenture.

In Witness Whereof, said United States Steel Corporation has caused these presents to be signed by a Vice President, and its corporate seal to be hereunto affixed and to be attested by its Secretary or by an Assistant Secretary, this JUN 14 1901

UNITED STATES STEEL CORPORATION,

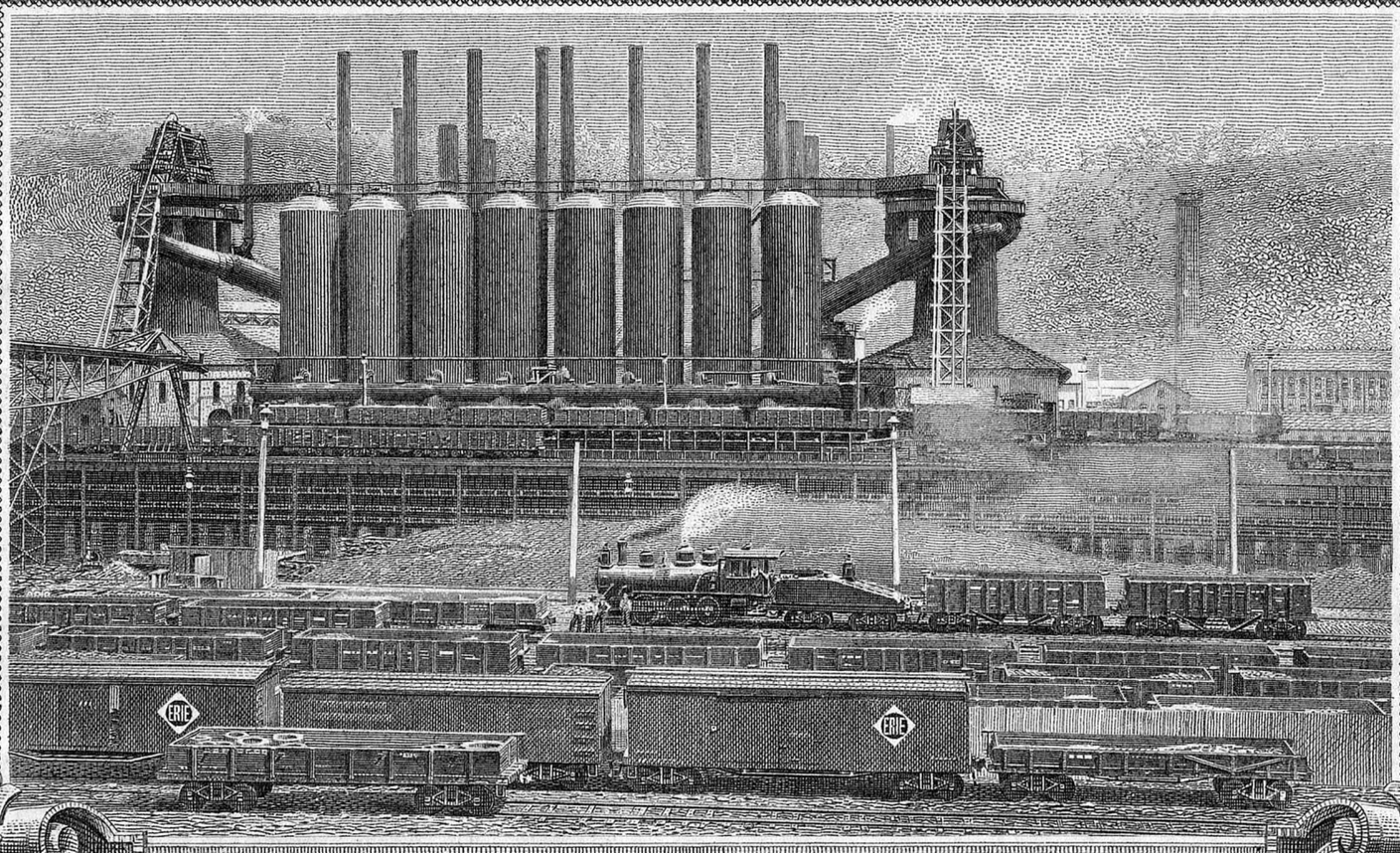
Attest: J. H. Horn SECRETARY.

by [signature] VICE PRESIDENT.

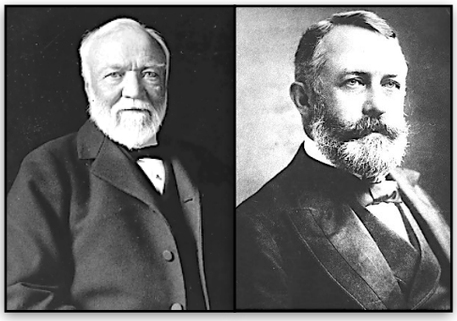
UNITED STATES OF AMERICA

AMERICAN BANK NOTE COMPANY, NEW YORK.

CANCELLED 1912 & CO.



Andrew Carnegie 1835-1919, his story and JP Morgan's buyout #2047



Andrew Carnegie Henry Frick

Andrew Carnegie's early life
Andrew Carnegie (1835-1919) was born in Scotland to a weaver family who had lost out to industrialization. The family moved to Allegheny, PA in 1848, where Andrew got a job changing cotton spools at $1.20 a week. The next year, at 14, he got a job as a telegraph messenger boy.

Modern photo of Carnegie Steel Mill at Etna, PA

Andrew had a gift for Morse code, and in 1853, aged 18, he got a job paying $4 a week as a telegrapher for the Pennsylvania Railroad Company. Six years later, they made Andrew superintendent of the company's Western division, paying him $30 a week. At the time, GDP per capita was $2.50 a week. His boss, Thomas Scott, showed him how to play the stock market, including insider dealing, which back then was legal. During the Civil War, Scott became Assistant Secretary of War.

Andrew was a mother's boy, eschewing marriage while she was still alive. She died when he was 51. He soon married his belle, Louise Whitfield, 21 years his junior. Even today, ultra-rich men marry women on average 22 years their junior. She later commented that his mother was the most unpleasant woman she had ever met!

Steel Mills
Aged 29, Carnegie invested $40,000 in Storey Farm, which became an amazingly successful steel factory. Andrew then decided to build a steel factory himself. Diplomatically, he named it after John Edgar Thomson, a Pennsylvania Railroad boss who had helped him.

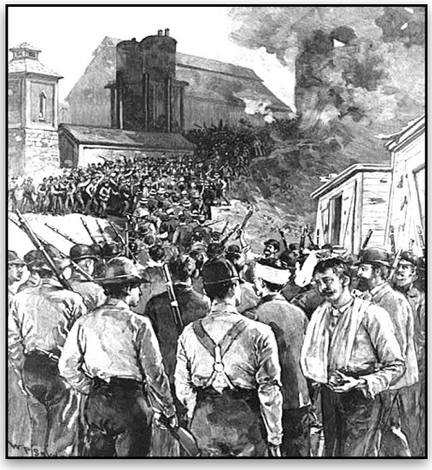
Carnegie adapted the Bessemer process and used mass production and low wages to drive down prices. Sir Henry Bessemer, a British engineer, invented the process in 1856, revolutionizing the mass production of steel. Carnegie vertically integrated with suppliers, and in 1883, bought the rival Homestead Steel Works.

In 1889, Carnegie made Henry Frick chairman of the company to reorganize their business, building it into the largest steel manufacturer in the world. Soon his factories were producing 2,000 tons of steel a day!

Two events that marred his career
But two events spoiled his reputation. The first was the Johnstown flood. Carnegie and 60 other gilded-age businessmen formed an exclusive club on a dammed-up lake. They called it the South Fork Fishing and Hunting Club. They did not upkeep the unsafe dam, and members knew it. In 1889, the dam ruptured, killing 2,209 people downstream in Johnstown. The club formed a relief committee to help victims. And as so often happens, the high-up muckety-mucks escaped prosecution.

Destruction three days after Johnstown flood of 1889, 2,209 people died

The second black mark came in 1892 — the Homestead Plant strike. Carnegie left to vacation in Scotland, putting the strike in the hands of his partner Henry Frick, who brought in 300 Pinkerton agents. Pinkerton started as a private detective agency which grew to include private guards. Big business often used them in the late 1800s to infiltrate unions. During the Homestead strike, Pinkerton agents killed ten people and injured hundreds. The Pennsylvania Governor brought in the state militia to end the strike. Frick then brought in non-Union strike breakers. Ugly!



Homestead Riots 1892, ten died, hundreds were injured

Carnegie sells out to JP Morgan
Enter master financier JP Morgan. In 1901, he merged steel companies in the US to form US Steel, the first US company capitalized at over $1 billion. US Steel merged Carnegie Steel Co., Federal Steel Co. and National Steel Co.

The stock certificate
Morgan paid Carnegie $480 million for his steel works. Of this, Carnegie personally got $225 million, paid for in 5% 50-year gold bonds. The interest alone was $11.25 million a year! The Hudson Trust Company in Hoboken, NJ, built a special vault to house the bonds. I show one of his bonds opposite.

Carnegie becomes a philanthropist
Carnegie changed. Instead of the driven businessman, he became the driven benefactor. He spent $350 million on charities

Example of a Carnegie Hero Medal (unawarded)

by the time he died in 1919. He gave particularly to libraries, universities, and educational institutions. Plus, a pension fund for former employees that grew into TIAA CREF. Carnegie also established the Carnegie hero fund to reward bravery.

The Wealthy 100 lists Carnegie as the number 5 wealthiest American of all time. Carnegie published *Triumphant Democracy* and *The Gospel of Wealth*, describing his meritocratic philosophy of philanthropy.

He had only one child, Margaret Carnegie Miller (1897-1990), named after his odious mother. She married in 1919, and divorced in 1953. She had four children, three grandchildren, and four great grandchildren.

What happened to US steel?
In 1901, US Steel controlled 65% of US steel production. But Bethlehem Steel innovated faster, and by 1911, US Steel only produced 50% of US steel. But US Steel remained in the DJIA from 1901 to 1986.

In the 1950s, US heavy industry declined. US Steel production peaked at 35 million tons a year in 1953. In 1952, President Truman tried to take over US steel mills to resolve a union crisis, but the Supreme Court blocked him.

During the Reagan administration, Congress gave steel mills tax breaks to try to keep critical industries in the US. But instead, the mills spent the money on acquiring other businesses. US Steel took over Marathon Oil in 1982 and renamed themselves USX Corporation in 1986. USX lived on in the DJIA for four years then became USS.

In 1986, United Steelworkers of America went on strike. After six months of idle factories, this seriously degraded US Steel's market share. They had to close four plants, hence the term "rust belt" for derelict factories. The Fairfield plant in Alabama made only 3 million tons of steel in 2006. It closed in 2015.

In 2014, USS was even kicked out of the S&P 500. Today, it has a market capitalization of only $4 billion. This puts it in the lower end of mid-cap companies. China made 1,020 million tons of crude steel a year in 2023, India 140, Japan 87, and the US came in fourth at 80.

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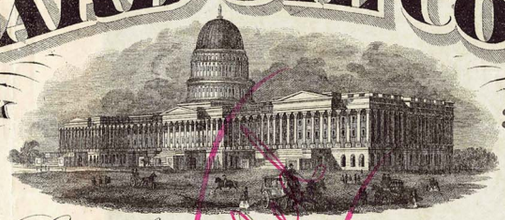
ORGANIZED UNDER THE MANUFACTURING LAWS OF OHIO.

No. 41 — 100 Shares.

STANDARD OIL COMPANY.

CAPITAL STOCK $3,500,000, ALL PAID.



35,000 SHARES, $100 EACH.

This is to Certify that J. A. Bostwick is entitled to One Hundred Shares of One Hundred Dollars each in the Capital Stock of the **Standard Oil Company**, transferable on the Books of the Company in person or by Attorney only on the surrender of this Certificate and due-payment of all liabilities on the part of the holder to the Company: subject to the provisions of Law and the By-Laws of the Company. This Certificate is valid only when signed by the President and Secretary.

Cleveland, O. April 8 1875

Henry M. Flagler Secy. — John D. Rockefeller Prest.

Maverick, Stephens & Co. 176 Fulton St. N.Y.

Henry M. Flagler Secy.

...d, O. April 8 1875

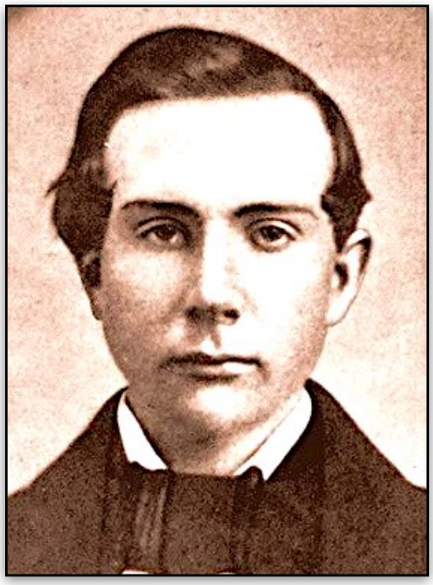
John D. Rockefeller Prest.

John D. Rockefeller, 1839-1937, the world's first billionaire #1906

Rockefeller's history

John D. Rockefeller (1839-1937) was a ruthless and brilliant entrepreneur who became America's first billionaire. His father, Bill, was a philandering con man; his mother was a devout Baptist. Bill left her and bigamously married another woman, leaving John without a father. Aged 14, John's family moved to Cleveland, Ohio. After leaving school, he took a six-month business course as a bookkeeper that he completed in ten weeks.

As a boy, John said he wanted to make $100,000, and to live to be 100. He succeeded in one wish and almost succeeded in the other! After business school, he methodically looked for a job for six weeks. He found a bookkeeping job with a Cleveland food wholesaler. But he left as they would not pay him what he asked, and started another produce business with partner, Maurice Clark.



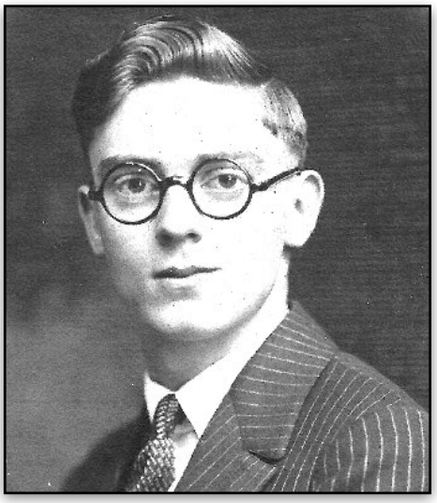
John D. Rockefeller aged 18

The Federal government in the 1860s subsidized oil, motivating many to drill for oil. The Pole, Ignacy Lukasiewicz, had invented the kerosene lamp in 1853, replacing candles. So Rockefeller and Clark got out of the produce business and switched to oil refining in 1863. Whale oil was getting too expensive, and America needed kerosene for light. Rockefeller, unlike his competitors, did not dump 40% of non-kerosene oil products. Instead, he refined them into heating oil to run his refinery, naphtha, tarmac, lubricating oil, paraffin wax, etc.

During the Civil War (1861-1865), if wealthy people like Rockefeller were drafted, they could pay $300 to a substitute to enlist in their place. This represented about two years wages for most (who incidentally worked ten hours a day and six days a week).

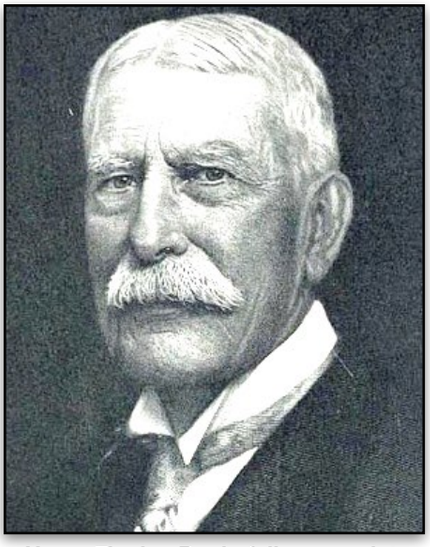
In 1865, Rockefeller bought out his old partner, Clark, for $72,500 and established a company with a brilliant chemist, Samuel Andrews. Andrews, who invented fractional distillation, owned 16.7% of the company and refinery. He sold his stock in 1874, long before the excesses of the gilded age. But he was no pauper!

John Rockefeller's brother, William, built a second refinery in Cleveland and joined the business. Soon, they owned the largest refinery business in the world. In 1867, Henry Flagler joined the business. Steve Harkness, Flagler's stepbrother, also joined as a silent investor.



Samuel Andrews, early petroleum chemist

Cleveland then had three times the refining capacity for Pennsylvania's northwest output. In 1870 Rockefeller changed the partnership's name to Standard Oil Co. of Ohio. The major investors were Rockefeller, Andrews, Flagler, and Harkness.

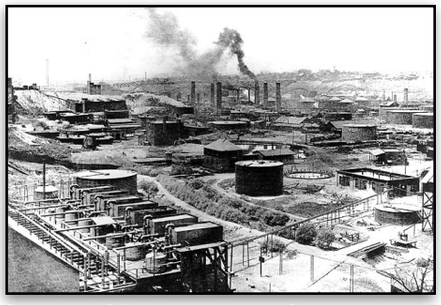


Henry Flagler, Rockefeller associate

Rockefeller hired his own barrel makers, bought his own wood, and hired his own plumbers. Cost was the lowest common denominator for everything, including transport. He bought his own rail cars, oil pipelines, and home distribution networks. He also bought out all his competitors, converting each to his own efficient system. His chemists developed 300 non-kerosene products, and he kept prices low. He first integrated horizontally (creating a monopoly), and later integrated vertically buying oilfields, railroads, pipelines, etc.

Rockefeller's Standard Oil Trust

Rockefeller's original business was the Standard oil Company (shown opposite). At the time, businesses could not operate in multiple states; they had to have one license in each state. In 1879, the state of Pennsylvania indicted Rockefeller for monopoly. So in 1882, his lawyers came up with the innovative idea of a unifying trust to control all those businesses in different states. The trust was a corporation of corporations. So Rockefeller transferred all his Standard Oil assets into the Standard Oil Trust in 1882.



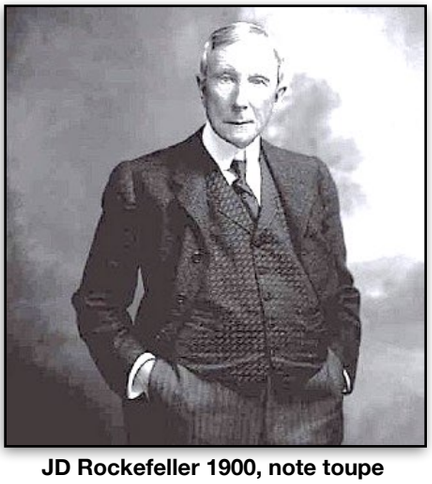
Standard Oil's first refinery, Cleveland 1897

The trust had nine trustees who controlled other companies in different states. They controlled 20,000 wells, 4,000 miles of pipeline and 5,000 tank cars — all vertical integration. Employing 100,000 people. Standard Oil then refined 80-90% of the world's oil — all before the automobile.

Standard Oil Trust Stock Certificate to Charles Pratt 1883 for $300,000

As electric lights displaced kerosene (1890-1920), Standard Oil expanded to Europe. They also expanded into gas for lights, heating, and cooking in the US. Their big boon, of course, became the auto industry, especially after the First World War (1914-1918).

After the Sherman Antitrust Act of 1890, the state of Ohio forced Rockefeller's Standard Oil Trust to break up in 1892. So Rockefeller simply transferred assets out of state and reincorporated his trust in the state of New Jersey, which allowed trusts.



JD Rockefeller 1900, note toupe

In the 1890s Rockefeller developed depression and lost all his hair. Ever after that he wore toupees. Somewhere around 1895 to 1897 (accounts vary), he retired from day-to-day management of Standard Oil and devoted his time to philanthropy. Carnegie would do the same when he sold Carnegie Steel to JP Morgan in 1901 for $450,000,000.

Ida Tarbell's book about Rockefeller

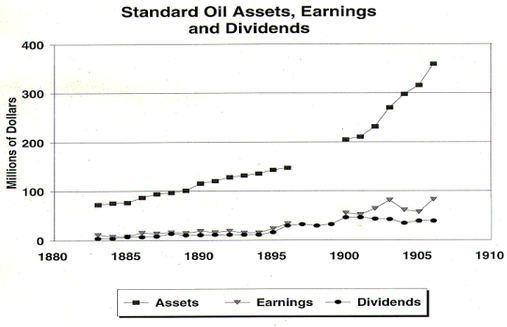
"*The History of Standard Oil,*" by journalist Ida Tarbell, came out first as a serial from 1902 to 1904 in McClure's magazine, then as a book. Ida documented that Rockefeller did not play fair. He used spies, secret deals with railroads, courtroom evasions, price wars, bribes to lawmakers, and was generally ruthless. The public couldn't get enough. They lapped it up and reacted against Rockefeller. Ida was a pioneering investigative journalist. Mark Twain (who coined the phrase "gilded age" to describe the excesses of the new wealthy industrialists) also helped her.

Ida Tarbell in 1904, the same year her book was published

In 1871, Rockefeller had made a secret alliance with three major railroads, which ran through Cleveland: the Pennsylvania, the Erie and the New York Central. These three railroads agreed to raise their rates to all oil shippers but to give Rockefeller "rebates" and "drawbacks". They called this secret deal the "South Improvement Company". Within months, the Pennsylvania legislature withdrew their charter. But it was too late. Within six weeks, Rockefeller had bought up 22 of his 26 competitors. One of these competitors was Ida Tarbell's father, who held out. He was ruined and committed suicide. This "commercial Machiavellianism" as Tarbell called it, inflamed public opinion against Rockefeller.

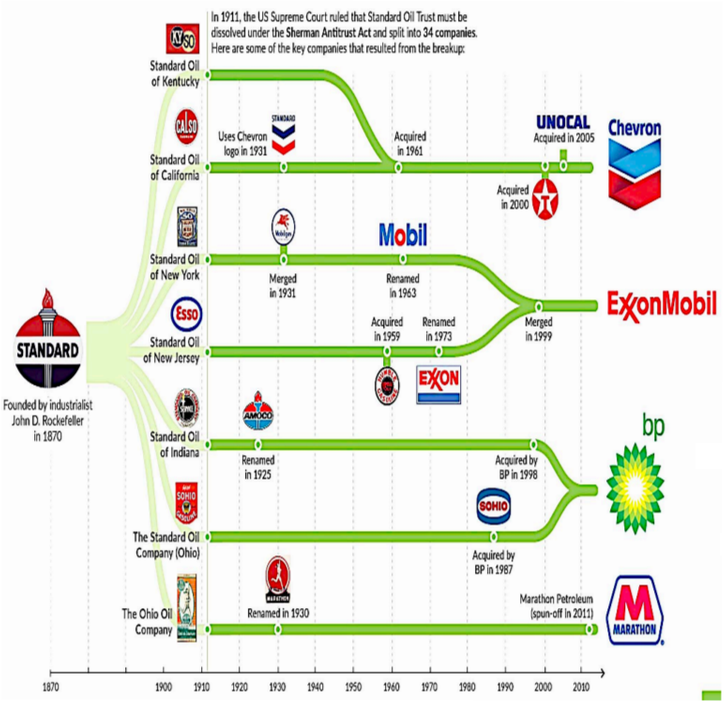
Rockefeller had previously kept quiet about such matters when complaints arose, but this time he wrote his memoirs. The date was 1908. He said he just "followed the laws of high-class dealing". The public saw straight through his lies. Paradoxically, Ida Tarbell's exposé would later make Rockefeller even wealthier. But the public hate that poured on him stung him. He called her "that poisonous woman".

The public was incensed that Rockefeller had kept his trust for 20 years after the Sherman Anti-Trust Act of 1890. Belatedly, in 1910, the US Supreme Court found Standard Oil in violation of the Sherman Anti-Trust Act and forced it to break up into 34 separate companies. Tarbell's book influenced legislators and led to the Hepburn Act of 1906, the Mann-Elkins Act, the Clayton Anti-Trust Act, and created the Federal Trade Commission.



Rockefeller owned 25% of the stock of the 1882 Standard Oil Trust. After the 1910 break-up, he received an equivalent share of stock in each of the 34 companies. Paradoxically, the break-up made him even richer. The value of these companies over the next decade doubled, making Rockefeller the first billionaire with an estimated net worth of around $1.5 billion. His 1918 tax return showed his fortune was $800 million. And he had already given away over $500 million.

Many of the successor companies to Standard Oil became huge themselves. It was Standard Oil of New Jersey that joined the new DJIA 30 in 1928, which became Exxon then ExxonMobil (see right).



In 1902, Rockefeller bought the Colorado Fuel and Iron Company. In 1913, their miners went on strike. The next year, in Ludlow, Colorado, a firefight broke out between strikers and National Guard troops who had been brought in. The striking miners lived in a tent city. Troops set the city on fire, burning fifteen women and children to death. The press excoriated Rockefeller and his local operative, Lamont Bowers. The US Commission on Industrial Relations held hearings that also excoriated them. Rockefeller's attitude was as usual dismissive. Curiously, his biographer, Allan Nevins, opined his wealth was "the least tainted of all the great fortunes of his day"! Rockefeller was devoutly religious and read the bible daily — a strange antithesis to his ruthlessness and dishonesty. Throughout his life, he donated to churches. But religion is a favorite hiding place for the dishonest.

Later in life, his philanthropy importantly became conditional upon the efficient use of funds and matching contributions from others. His funds were a major contribution for several institutions:

- Spelman College (named after his wife) for African American female Baptist Seminarians
- The University of Chicago;
- Central Philippine Baptist University
- Ivy League universities.

He also helped fund Colonial Williamsburg and founded the Rockefeller Institute for Medical Research, which became Rockefeller University, now claiming 23 Nobel laureates.

Importantly, Rockefeller also paid to implement the Flexner report, which Carnegie had funded. This created uniform standards of medical education in the US. Many "medical colleges" closed, and many practitioners (particularly electrotherapists, naturopaths and homeopaths) were derided and went out of business.

Earlier in life Rockefeller was unapproachable and unsocial. But later in life he became more social and developed the strange practice of handing out shiny new dimes to people he met. What was a billionaire doing handing out dimes to people?

Rockefeller's only son was John, Jr., who had several sons: David who became CEO of Chase Manhattan Bank; another, Nelson became Governor of New York and Vice President of the US; and another, Winthrop became governor of Arkansas.

John D. Rockefeller had lived life without smoking or drinking, and in retirement played golf almost daily. He died in 1937 at 98.

Apart from his ruthlessness bordering on criminality, Rockefeller's business success was based on relentless analysis of economies to be made: hiring good people and delegating to them; horizontal and later vertical integration; plowing back all profits into the business; becoming a monopoly; and developing the concept of a trust to defeat the Anti-Trust Act.

Standard Oil of New Jersey lived on in the DJIA 30 in 1928, becoming Exxon in 1973, and ExxonMobil in 2003, exiting in 2020. Chevron joined the DJIA in 2008.

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4

INTERESTING AND IMPORTANT COMPANIES

Accession #	Country	Security Title	Stock Date	INTERESTING & IMPORTANT COMPANIES Description
2795	Netherlands	VOC	1602	Very early company, and probably the most successful company of all time
1847	France	Mississippi Company	1717-1720	John Law almost bankrupted France with this and other schemes
2304	UK	South Sea Company	1738	Massive bubble which almost bankrupted the UK
1902	France	Tontine Annuity	1761	A special type of annuity
1670	US	Continental Currency	1779	Financed the American Revolution. Zero coupon bond rather than currency
2374	US	NY State Bond	1815	One of many Erie Canal Bonds
1877 & 1885	US	Baltimore & Ohio RR	1837	First US Railroad to operate steam locomotive. Built historic infrastructure.
2244	US	Pacific Mail Steamship	1848	Aspinwall started the first steamship company which got into the DJTA11. He also built the Panama Railroad.
1798	US	Panama RR	1850	The first solution to joining the Atlantic and Pacific US coasts
2141	France	Panama Canal	1880	Another solution to joining the Atlantic and Pacific US coasts. France failed, but the US bought them out and finished it.
1899 1991	US	Union Pacific RR Central Pacific RR	1865 1949	The final solution to joining the Atlantic and Pacific US coasts. Union Pacific and Central Pacific completed the first Transcontinental Railroad.
2068	US	City of Los Angeles	1907	Cadillac Desert — the story of Los Angeles' water supply
2186	China	Petchili bond	1913	Petchili province, China. A hyped scripophily rarity. The bond was part of a £500,000 gold loan to China.
2312	China	Pagoda bond	1937	Pagoda bond — another Chinese loan from the West
1987	US	Otis elevator	1920	Enabled building skyscrapers and modern cities
1992 & 1993	US	New England Consolidated Ice Co.	1932	The story of commercial ice distribution starting in America, later spreading through the world.
1959	US	Carrier Corporation	1930	First US company to make air conditioners, opening southern settlement

This chapter explores a series of historically significant companies and their stock certificates, showcasing the evolution of finance, industry, and infrastructure from the 1600s to the 1900s.

1. EARLY FINANCIAL POWERHOUSES

The Dutch East India Company (VOC), founded in 1602, stands out as one of history's most successful enterprises, paying dividends over 10% for nearly two centuries. It was the first company to issue dividend-paying stock and the first global conglomerate.

By contrast, **John Law's Mississippi Company** (1717-1720) and the South Sea Company represent cautionary tales of financial bubbles that nearly bankrupted France and England, respectively.

2. INFRASTRUCTURE/TRANSPORTATION

The **Erie Canal bonds** exemplify a high-risk, high-reward investment that transformed American commerce, shifting economic power from Philadelphia to New York.

The Baltimore and Ohio Railroad, as the first US company to operate steam locomotives, played a crucial role in early railroad expansion.

3. CONNECTING THE COASTS

The quest to unite America's east and west coasts involved several ambitious projects:

1. **Pacific Mail Steamship Company**
2. **Panama Railroad**
3. **Panama Canal**
4. **Transcontinental Railroad (Union Pacific and Central Pacific)**

These endeavors revolutionized transportation, trade, and communication across America.

4. OTHER NOTABLE VENTURES

- City of Los Angeles water bonds
- Petchili bonds and China Pagoda bonds (examples of speculative investments)
- Otis Elevator Company (enabling skyscraper construction)
- New England Ice Company (precursor to modern refrigeration)
- Carrier (pioneering air conditioning, facilitating Southern US settlement)

These companies and their financial instruments represent pivotal moments in economic, technological, and social development, shaping the modern world through innovation, risk-taking, and sometimes spectacular failures.

Nº 16188

CERTIFICAAT

Ter inwisseling van Obligatien, ten Laste der Oost-Indische Compagnie dezer Landen, rentende 2 pCto. na aftrek der 100 en 200 Penn.

Tegens intrekking dezer zal ten Comptoire van de Oost-Indische Compagnie, worden ingewisseld een Capitaal van HONDERD GULDENS, van gemelde Obligatien, tegen een gelyk Capitaal Nieuwe Obligatiën a 2½ pCto. ingevolge 't Plan der Lotery Negotiatie van Aº. 1785.

J. Temminck

NETHERLANDS VOC (East Indies) 3 Gulden Utrecht 1786. Obv: MO:ARG:ORD:FOED:BELG:TRAI (Silver Money of Parliament of United Netherlands of Utrecht) Crowned Shield of Crowned Rampant Lion with Arrows in Left Front Paw & Sword in Right Front Paw. Rev: HANC TVEMUR HAC NIMITVR (We Defend One, Supported by the Other) Hollandia Holding Inverted Spear with Liberty Cap, Elbow Leans on Bible on Pillar. 41mm, 31.13 Grams. KM 117. EF

2424

VOC (Dutch East India Company) 1602-1799 #2795

The **Dutch East India Company**, or **VOC** (Vereenigde Oost-Indische Compagnie), was one of the most influential companies in history. Operating from 1602 to 1799, it was the first company to issue dividend-paying stock and the first publicly traded company. For almost 200 years, it paid an extraordinary annual dividend averaging 13–18%. Often considered the first global conglomerate, the VOC controlled activities like shipping, shipbuilding, exploration, overseas trade, and even military operations.

Exploration and Henry Hudson
In 1609, the VOC hired explorer **Henry Hudson** to find a northeast passage—a sea route north of Russia to China and Japan. When this failed, Hudson searched for a northwest passage through America. During this time, many expeditions aimed to find these elusive trade routes.

A Powerful Corporation
Considered by many the forerunner of a modern corporation, the VOC became so powerful it had its own army and navy of 10,000 men. The VOC built 1,461 of their own ships and even had their own coins.

Over two centuries, the VOC sent a million Europeans to Asia aboard 5,000 ships, transporting five times the tonnage of its rival, the British East India Company. The VOC dominated the spice trade in the 1600s and also imported sugar, coffee, wine, and textiles. It was essentially the "Silicon Valley startup" of its day, inspiring England to model its **British East India Company** after it in 1657.

Government-Like Powers
The Dutch government granted the VOC incredible powers. It could wage war, sign treaties, issue coins, imprison and execute people, and establish colonies. These powers gave the VOC a level of autonomy rarely seen in corporations, even today.

The Amsterdam Stock Exchange
In 1611, entrepreneurs established the **Amsterdam Stock Exchange**, with the VOC as its primary focus. It was the world's first stock exchange and inspired economist **John Law** to write about finance, banking, and the money supply.

Law attributed the VOC's success to the availability of capital through the stock exchange. However, his later experiments with paper money and fractional reserve banking in France led to the infamous **Mississippi Bubble**, nearly bankrupting the country.

Coins and Currency
There were two Hollands: the Protestant United Provinces (today called Holland, or the Netherlands), and Catholic Spanish Netherlands (today called Belgium).

United Provinces each issued their own coins, as did the VOC. The provinces were: Friesland, Gelderland, Holland, Overijssel, Utrecht, West Friesland, and Zeeland. They issued several crown-sized coins:

- **Lion dollar (48 stuivers):** 27.68 grams, 75% silver
- **Rijksdaalder (50 stuivers):** 29.03 grams, 88.5% silver
- **Silver Rider or Ducatoon (63 stuivers):** 32.78 grams, 94.1% silver

The monetary system was:

- 2 pennings = 1 duit
- 8 duits = 1 stuiver
- 20 stuivers = 1 gulden (or guilder)
- 50 stuivers = 2.5 guilders = 1 silver ducat

Investment and Operations
The VOC's 17 directors had to invest 6,000 guilders each (later reduced to 3,000 for smaller branches). Private investors received an average return of 12.5% annually. At its peak, the company employed 35,000 people and operated 250 trading posts in Asia.

Navigational Innovations
In 1613, Dutch Captain **Brouwer** discovered the "Roaring Forties" (strong winds at 38° south latitude) that made voyages six months faster than the diagonal Portuguese route. In 1607, the VOC standardized this route. This required captains to use several methods:

1. They threw a longline overboard. It had a semicircle of wood attached to a weight and a rope with markers on. The baffle and weight of the wood kept it fixed in the water. They used a 14-second hour glass, and measured the number of marks on the rope line achieved in 14 or 28 seconds to calculate speed.
2. They calculated sideways drift by floating a buoy on a line and measuring the angle of drift with a compass.
3. If they were close enough to the coast to see fixed landmarks, they could figure currents, but could not do this out at sea.
4. They were supposed to write these measurements every hour in the captain's log.

Latitude was determined in the northern hemisphere by observing the height of the polestar at night or the angle of the sun at midday using an astrolabe or sextant. In 1762, Harrison's chronometer also made calculating longitude (east-west axis) possible.

VOC Fleets and Ships
The VOC sent three fleets from Holland each year:

- The **Easter Fleet** (April/May)
- The **Kermis Fleet** (September, named after Amsterdam's annual fair)
- The **Christmas Fleet** (December/January)

Many internet references give weights as load carrying capacity or as fully laden ships. They also give lengths in Dutch or English feet without specifying the difference. One Amsterdam foot was 11.13 British inches. The Dutch divided their foot into 11, not 12 inches.

The VOC called smaller ships yachts, flutes, frigates, heifers, galliots, sternboats, cat ships, packet boats, brigantines, barques, and sloops. The large return ships or mirror ships were also called East Indiamen. They originally came in three sizes: 130, 135, and 145 Dutch feet.

The VOC built most of its 1,770 ships in its own shipyards, with around 100 large return ships and 100 smaller ships sailing to Asia at any given time. Over the company's history, they made 4,789 outward voyages, losing only 2% of their ships, and 3,401 return voyages, losing only 4%.

Reforms and Standardization
In 1741, VOC Governor-General **Gustaaf Willem Baron van Imhoff** reformed the company. He advocated for larger, standardized ships to improve efficiency. His efforts reduced costs, increased cargo capacity, and modernized shipbuilding techniques.

The VOC did not publish any of these changes; they kept them all internal matters, so few outsiders knew about them.

Trade with Japan
After Christian proselytizing in Japan, the **Tokugawa shogunate** implemented a policy of isolation, or **Sakoku**, from 1633 to 1853. They banned foreigners from entering Japan, and Japanese citizens could not leave under penalty of death. However, the VOC was the **only European entity allowed to trade** with Japan, operating from the artificial island of **Dejima** in Nagasaki Bay from 1641 to 1799.

The certificate
Early securities were boring, just printing on paper and a signature like this one. This 100 gulden bond opposite reads: *For the exchange of bonds, payable to the East India Company of this country, with 2% interest after deducting 100 and 200 pennies. Upon withdrawal of this, a capital of 100 guldens, of the aforementioned bonds, will be exchanged at the comptoire of the East India Company for an equal capital of new bonds of 2 ½% in accordance with the plan of the lottery negotiation of the year 1785.*

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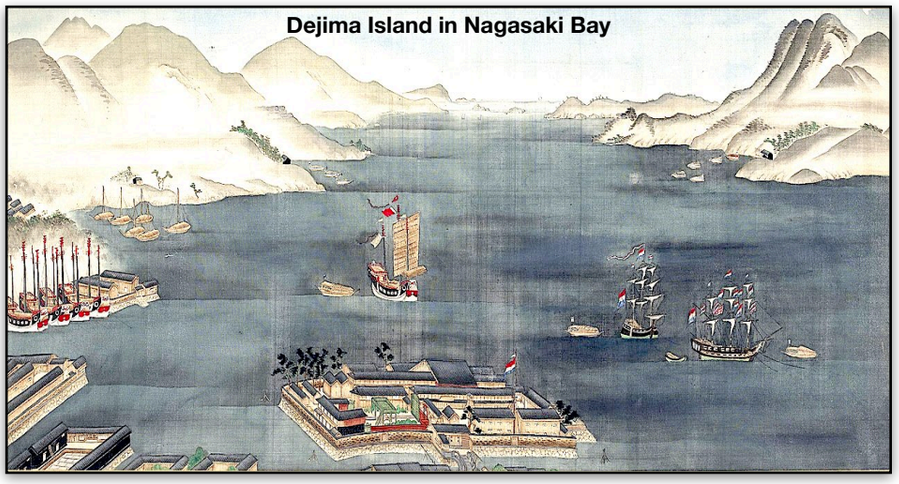


Dejima Island in Nagasaki Bay

John Law's Mississippi Company 1718 - 1720 #1847

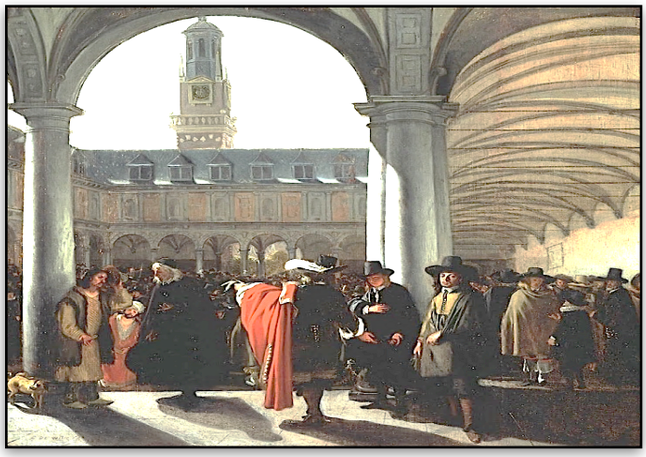
What happened to France in 1715? A dandy Scottish gambler started to take over her finances! His name was John Law (1681–1729) — a most unlikely character!

John Law

Born into a family of bankers and goldsmiths from Fife, Scotland (35 miles north of Edinburgh), John Law started at 14 working in the family bank. After three years, his father died, making him a "rich kid". He moved to London, living a lavish life as a gambler and dandy.

John Law by Casimir Balthazar

Aged 23, he fought a duel over a woman, killing his opponent by running him through with his sword. Authorities sentenced him to death, but after a while in prison, they reduced the charge to manslaughter, commuting his sentence to a fine. But, when his opponent's lawyers started a suit to convict him, Law escaped from prison and high-tailed it to Amsterdam.



Amsterdam Stock Exchange, 1653

Once there, he continued gambling but found a new interest: The Amsterdam Stock Exchange. He constantly refined his ideas of gambling, finance, and economics. In the mornings, he studied finance; in the evenings, he gambled. He could do complex mathematical calculations in his head, helping him figure out the chances of winning almost every imaginable game. But the workings of the Amsterdam Stock Market fascinated him most of all.

After five years, he figured the availability of money and credit were the reason for Holland's commercial success. He decided that paper money was the path to financial success and suggested it to Scotland, who were not interested. Further, after the 1707 Act of Union joining England and Scotland, he was now also outlawed for manslaughter in Scotland.

In 1704, Law wrote a treatise on a land bank, and in 1705, another on money and trade. He concluded that increasing the money supply would increase trade, production, and employment, and used several ideas to facilitate this — paper money, fractional reserve banking, and easier credit. His new formula for banking was:

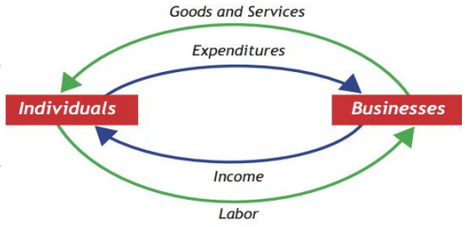
- Assets are loans plus specie on deposit
- Liabilities are deposits and printed bank notes.

He was way ahead of his time! With fractional reserve banking, banks could loan out more than their deposits, thus making money from interest, while increasing available credit.

How does fractional banking work? Assume the fractional reserve ratio is 50%. If a man borrows $100 from bank A, he can deposit that money in bank B. Bank B can then loan out $200, which can then be deposited in bank C. Bank C can then loan out $400. This multiplication effect increases the money supply — normal practice today.

Before John Law, mercantilism was the prevailing European economic theory. Mercantilists viewed wealth as accumulating silver or gold in the mother country. They eschewed paper money, credit, and IOUs.

In those days, people sometimes deposited their gold with a goldsmith who gave them a receipt. Sometimes, they paid others with their goldsmith's receipt, but there was no multiplication effect. The only spendable money was gold and silver coin (specie). No one trusted paper money or credit. The money supply was fixed.



Circular Flow of goods, services, and money

Law originated the circular flow model of money, later espoused in the 1750s by the French physiocrats. The physiocrats said land development (i.e., agricultural and mining products) was the source of all wealth, so should be highly priced. They were the first to emphasize productive work as the source of national wealth.

John Law tried presenting his ideas to various European courts, but without success. Like an early Keynesian, he believed that increasing the money supply would stimulate the economy. But he was much more polished than Keynes! A multilingual gambler, a womanizer, and an immaculate dresser, he had all the accoutrements for a successful royal French financier! From 1707 to 1717, he travelled back and forth between France and the Netherlands.

Louis XIV's profligate spending

In 1714, Louis XIV (1643-1715) started the Compagnie d'Occident (Company of the West) with a royal charter and exclusive trade privileges by pronouncing a royal decree.

Louis XIV, the profligate spender

Louis XIV was profligate, borrowing excessively to build Versailles palace (see top right). By the time his great-grandson, Louis XV, took over aged five, France verged on bankruptcy. The Crown owed three billion livres! They took in 145 million in taxes and spent 142 million a year. That left only 3 million to pay interest on 3 billion livres! Most of the debt was billets d'Etat (like T-Bills) and billets de Monnaie (floating debt).

The Court appointed the Duc d'Orléans regent for the new king and "Le Duc" was desperate! The French government had defaulted on its debt, decreased interest payments, and increased taxes, thus depressing the economy.

Versailles Palace

Duc d'Orléans — wow! What a bow tie!

Incidentally, I often think the only way the US could pay off its huge national debt — $36 trillion in February 2025 — is controlled inflation to reduce its cost.

John Law gets an "in" at Louis XIV's court
In October 1715, John Law made his first proposal to a nobleman, Guy-Crescent Fagon, physician and horticulturist to the king. Law told him he could set up a bank which received all royal coin revenues and which would issue paper notes backed by those coins. Law was planning his new idea — a fractional reserve system.

The epitome of sartorial elegance, gambling in high stakes joints, Law quickly met influential people. He charmed his way around Paris, including the influential Duc d'Orléans, regent for the new King Louis XV. In early 1716, Law presented a plan to the desperate Duc for a Banque Générale: replace specie with paper credit. The poor Duc had already tried to pay back people with government bonds, and had tried to devalue gold — both had failed.

Law gets a bank
In May 1716, John Law got the desperate Duc to grant him the privilege of a private bank. It had a capital of 6 million livres, 25% in coin and 75% in state bonds.

Law got the bonds at 70% on the livre. But, he used their full face value for the bank capitalization — even back then they used creative accounting! Although they were not legal tender, Frenchmen accepted them because the bank promised redemption in specie. The public knew the only alternative was a progressive debasement of specie. And they did not want that! Law's bank also made loans, thus expanding credit. Voila! Hello fractional banking!

Though the bank business cruised along, its 6 million livres would never be enough to retire three billion livres of royal debt!

Law buys the Mississippi Company
Then, in August 1717, Law bought the Compagnie d'Occident (also called the Mississippi Company). It had a 25-year trade monopoly for La Louisianne (French Louisiana which, shortly after, added Illinois country). In return for his royal favors, all Law had to do was to transport 6,000 settlers and 3,000 slaves to La Louisianne. Hey! Would he say no?

Then, in January 1719/1718, Law underwrote the equivalent of an IPO of his Mississippi Company. This was a government monopoly, which he bankrolled with 200,000 shares of 500 livres each, i.e., 100 million livres of stock certificates. (His private bank had only 6 million livres). The public bought the shares for 15% down and monthly payments of 5%. They did not have to pay with specie, only with paper banknotes or French State bonds. Law's company converted the state bonds received into company loan certificates promising a 4% interest. For three months, prices were stable.

His Mississippi Company then bought the Compagnie des Indes Orientale (East India Company) and the Compagnie de Chine (China Company) from the king. The king was desperate for cash. In May 1719, Law changed the name of the companies to Compagnie Perpetuelle des Indes (Perpetual Company of the Indies). Later that month, he changed the name again to the Compagnie des Indes. But everyone kept on calling it the Mississippi Company.

By July 1719, the original Mississippi Company's 500 livres share price had tripled to 1,500 livres. That month, Law continued his buying spree. He bought up all the French Mints and could now coin money and make a profit on coinage (seignorage). He paid the king for his mints by issuing another 50,000 shares of his stock at 1,500 livres, i.e., another 75 million livres. It seems so obvious now, but the public did not notice the stock dilution effect!

Then, in August 1719, Law bought the French African concession, which included tobacco and a slave trading monopoly — more cash for the king! That month, the King charged Law 1.2 billion livres for the right to collect all French taxes. To pay for that, Law sold yet more stock — yet more dilution. People still did not figure it out!

Not only was Law good at finance, he had a flair for marketing! The Mississippi Company circulated rumors that gold flowed freely in America. Law showed no interest in squelching such rumors! They led to wild speculation. But his New Orleans settlements were half-hearted.

The Mississippi Company held tons of French State debt, which it changed to stock. By September 1719, their shares rose to 5,000 livres. Law wanted to retire the French government's debt. So, he sold another 300,000 livres of stock at 5,000 livres per share, i.e., 1.5 billion livres, which retired some of the French Crown's debt of three billion livres. Although no one had yet invented the term "dilution effect," you would think someone would have smelt a rat!

By November 1719, the stock had risen to 7,000 livres, and Law sold even more stock for debt refunding. This is how it worked: the public could pay for the stock in specie, paper money, or by French government bonds (i.e., royal debt). Conveniently, this helped retire the enormous debt of the French King, for which he expressed eternal gratitude!

By December 1719, the stock price rose to 10,000 livres. This gave rise to an unfamiliar word, "Millionaire," to describe all the newly rich French laborers. The craze grabbed everyone! All the while, Law promised a 4% dividend on his stock, though La Louisianne (French Louisiana) had no gold and was not producing much of anything. There were hardly even any people there!

To encourage people to populate the region, Law promised prisoners could go free if they married a prostitute and lived in La Louisianne! That killed two birds with one stone! Get rid of prisoners and get rid of prostitutes! In December 1719, France sent just 96 "prostitutes" to Louisiana.

In January 1720/1719, the grateful Duc d'Orléans appointed Law Controller General of Finances (equivalent of Secretary of the Treasury).

The next month, the Duc changed Law's private Banque Générale into the Royal Bank. The Mississippi Company and Royal Bank then merged the state's finances with the King's, who now backed all the printed paper currency! In the end, Law had issued 625,000 shares of the Mississippi Company. When valued at 10,000 livres, peak capitalization was 6.25 billion livres! (See graph next page).

BANQUE

N.° 1940977 *Cent livres Tournois.*

LA BANQUE promet payer au Porteur à vüe Cent livres Tournois en Eſpeces d'Argent, valeur reçeüe. A Paris le premier Janvier mil ſept cens vingt.

Vû p.r le S.r Fenellon. *Signé p.r le S.r Bourgeois.*

Buffard Dufour

Controllé p.r le S.r Dureveſt.

Fuzon

1720 Royal banknote for 100 livres

Something similar happened in the US in the 1920s: banks could handle both investment banking and personal banking. But it was too easy for a bank to use private funds for stock schemes. So, after the Wall Street crash of 1929, the government outlawed this, passing the 1933 Glass-Steagall Act, which separated investment and private banking. Yogi Berra would have called it déjà vu all over again!

To return to our story, the Duc then authorized printing a billion livres of paper currency (this time not backed by specie). Finally, by March 1720/1719, it was all printed. I show one opposite for 100 livres.

But Law realized that, with his excessive printing of paper money, inflation had taken hold. In May 1720, the stock was still worth 9,000 livres. But by July 1720, inflation reached 23% in a single month. In a year, prices had doubled. Realizing the stock was overvalued, Law devalued the Royal Bank banknotes by 50%. This led to a public uproar. So, Law restored the value of the bank notes but stopped specie payment rights. This resulted in a further drop in the share price. He hoped specie would flow from his Compagnie des Indes (alias Mississippi Company) to back paper money. But it never came. Nothing really ever came from La Louisianne!

With the inflation, Law advised the king to issue edicts, saying printing money and spending gold was illegal, then to close the banks. This caused even more public agitation.

Then Law said he would buy back shares with printed money. To do this, he printed more and more notes to stop people wanting gold. He then got the King to issue another edict that the public could not spend gold for purchases over 100 livres. But after more riots, they made it legal to spend gold again.

Then a funny thing happened. People began to wonder whether this was all real. They started selling their stock for banknotes, which they then converted to specie. But Law's original fractional reserve was only 25%, i.e., they only had 25% of the original issued bank notes backed by specie. Remember, this was before people felt comfortable with paper money. (In March 2020, the US fractional reserve ratio dropped from 10% to 0%!)

So, with insufficient specie to pay back investors, banks closed (today we call it a run on the banks). Then the share value dropped further. The chart at top right tells it all!

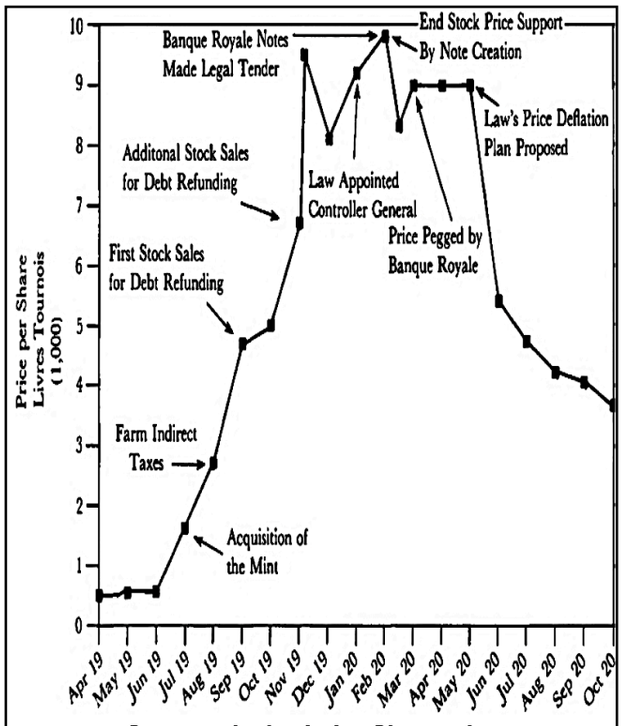
The stock rose to 10,000 livres by February 1720. But by the end of the year, it had dropped back to its initial 500 livres! Law was Controller General of Finances, the highest financier in the land. He controlled the Royal Bank, the Mississippi Company (state monopoly for all colonies outside France), all the French Mints, and collected all French taxes. Wealthy beyond belief, he had extensive real estate holdings in Paris and owned several chateaus outside Paris.

Law gets fired

Finally, the Duc dismissed Law as Controller General and Chief Director of the Banque Royale. Petrified, Law disguised himself as a woman and took a carriage from Paris to Brussels. Very wise!

No one caught him. He spent several years touring Europe as a gambler. Pardoned of manslaughter in 1719, he returned to London in 1725, then travelled to Venice in 1729, where, destitute, he died at 48 of pneumonia. His Royal Bank had produced the first collectible French bank notes.

Was he a con man or financial wizard? More likely a financial wizard who had not yet completely figured things out. Thomas Edison may have invented the record player. But it was Victrola who ironed out all the problems, marketed it, and made their fortune from it.



Compagnie des Indes Share price.

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Bubbles

The first modern bubble was tulipomania in Holland in 1637. The second was the Mississippi Bubble in France in 1719–1720. English financiers had watched Law intently, itching with excitement to do something similar. And sure enough, the similar South Sea Bubble disaster hit England in 1720.

Bubbles still occur today. Many bubbles follow bubbles in other countries, often spurred by easy money and excessive credit. For example, the Japanese stock bubble in the early 1990s led to funds surging into Asia, where another bubble occurred from 1997 to 1998. Easy money and credit in the US in the late 1990s contributed to the Dot-com bubble from 1995 to 2001.

The Mississippi Company and the South Sea Company taught us the following lessons:

- people in places of power can take ill-advised actions
- people are greedy
- it is too easy to leverage finances with excessive credit

Law always maintained that his "system" was for the good of all (though he benefitted much more than others, amassing an enormous fortune during his heyday).

The Mississippi Bubble was not just an isolated stock bubble. A foreigner had taken control of all government finances, all imports and exports, minting money, and printing banknotes. His bank even had the King's backing to print money. Law had merged it with his Mississippi Company and sold stock in it. Today, economic historians are mixed about his intentions and legitimacy.

Contemporary political cartoon of Law from *Het Groote Tafereel der Dwaasheid* (1720)

Text reads "*Law loquitur. The wind is my treasure, cushion, and foundation. Master of the wind, I am master of life, and my wind monopoly becomes straightway the object of idolatry. Less rapidly turn the sails of the windmill on my head than the price of shares in my foolish enterprises*".

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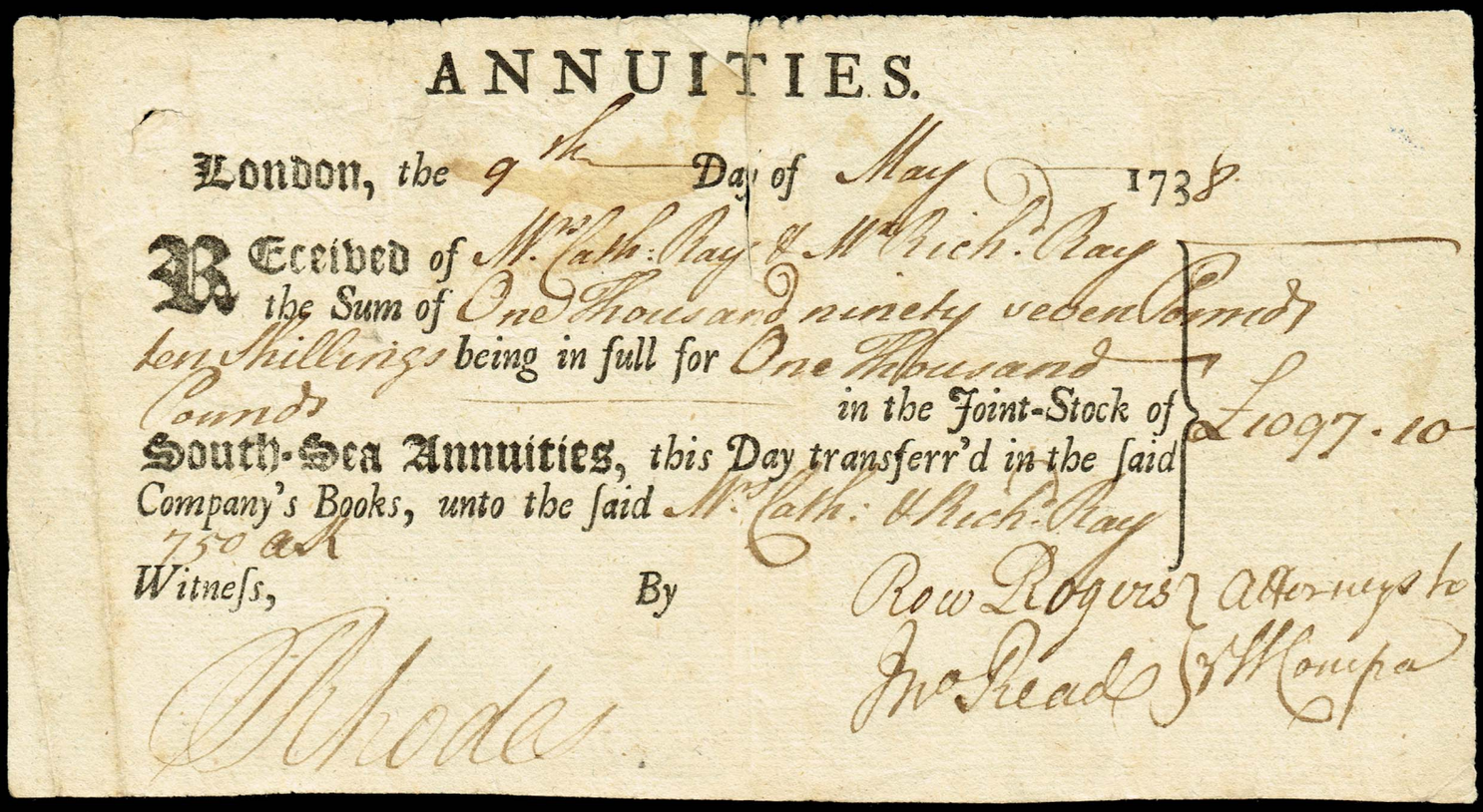


ANNUITIES.

London, the 9th Day of May 1738

Received of Mrs Cath: Ray & Mr Rich: Ray the Sum of One Thousand ninety seven Pounds ten Shillings being in full for One Thousand Pounds in the Joint-Stock of South-Sea Annuities, this Day transferr'd in the said Company's Books, unto the said Mrs Cath: & Rich: Ray 750 ak

£1097.10

Witness, By Rhodes

Row Rogers } Attorneys to
Jno Read } S. Sh Compa

The first Prime Minister, Sir Robert Walpole, Whig Prime Minister 1721–42, talking to the Speaker, Sir Richard Onslow, in the House of Commons.

The South Sea Bubble and general 'share madness' of the time is satirized in this print of 1720. Even 'A Company for carrying on an Undertaking of great Advantage, but nobody to know what it is,' had a thousand subscribers.

British South Sea Company 1738 #2304

The Certificate
As I have said, early securities are boring, just signed chits of paper. That is what this is. It says the company has received money for a £1,000 transfer of the First Issue Annuity for Mrs. Catherine and Mr. Richard Ray on May 9, 1738. The South Sea attorneys, Rogers, Row, and Jonathan Read signed it and Rhodes witnessed it. Back then, an average working wage was around 10 pence a day, so £1,097 represented about 80 years of labor!

The South Sea Company
In 1711, England's Parliament passed an act founding a joint stock company called the South Sea Company (SSC). The South Sea was the Pacific Ocean, first seen by Balboa off the southern coast of Panama. Britain thought they could consolidate their national debt and individuals could profit from the Americas by using a public-private partnership.

The same year, to pay interest on government debt of £9 million, the government had several successful lotteries. But, like today's Powerball, the government annuitized payments, thus holding onto winners' money for long periods! Why can't they be honest?

After forming the SSC, the government transferred their national debt to it by issuing SSC stock to its creditors. SSC then took on £9 million in debt and received 6% a year from the government in interest. This was well above the 4-5% prevailing interest rates. But the SSC attracted SSC stock buyers by paying the 6% dividends.

In 1713, parliament granted SSC a trade monopoly to trade African slaves to the Spanish and Portuguese in South America. That same year, the Treaty of Utrecht ended the War of the Spanish Succession, which stipulated the French Philip Bourbon, who had inherited the Spanish crown, renounce any claims to the French crown. Britain, Holland, and Austria did not want to contend with a king of both France and Spain.

British medal celebrating Treaty of Utrecht ending Queen Anne's War in 1713 #2746

As part of the Treaty, Spain granted an *Asiento de Negros*, agreeing to accept 4,800 slaves a year from Britain for 30 years. But they allowed only one ship a year to each of seven Spanish towns and taxed each slave imported!

But the end of the War of Spanish Succession did not bring the commerce SSC anticipated. Their main income came not from slave dealing, but from smuggled contraband with each ship, sold to the Spanish at great profit.

From 1716 to 1720, John Law's financial ventures ended in a failure of his Mississippi Company. But the excitement along the way made English investors green with envy!

In 1718, George I, who already had lots of SSC stock, became SSC governor, sending the stock even higher, despite miserable earnings. However, the company founders engaged in insider trading and bribed politicians, giving them cash loans to buy more stock!

In 1719, total British government debt rose to £50 million, composed as:
- £3.4 m The Bank of England,
- £3.2m British East India Company
- £11.7m SSC.
- £16.5m held by individuals
- £15m held as annuities.

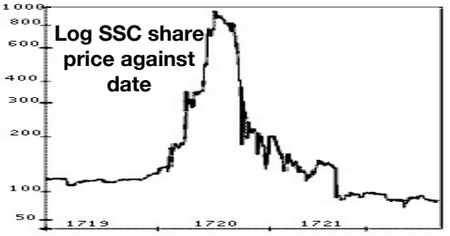
Leaders in the government and the SSC did inside deals which meant taking on £31 million more of national debt. When presented to parliament in 1720, a stunned silence followed. They would exchange old SSC stock for new SSC stock.

A month before, at Christmas, the SSC announced they would defer their dividend for a year. But they made many generous insider payments to various helpful lords. The government gave the SSC £7.5m cash to take over government creditors, but the SSC gave stock to those creditors instead.

In 1723, the Royal Mint made SSC coins.

National debt had morphed into tradable SSC stock, which many considered safer than holding bullion, and more convenient to trade than land. The greater fool theory, not fundamentals, drove investors. SCC made relatively little money!

Instead, SSC went on a promotional extravaganza, persuading people to buy more stock at ever higher prices, creating a bubble. In 1720, the price rose to £1,000, then by year's end fell back to £124:



The bubble bursts
The SSC bubble burst the same year as John Law's Mississippi bubble! Later that year, Robert Walpole, then Chancellor of the Exchequer, had parliament pass the Bubble Act, so joint stock companies had to have a royal charter. SSC restructured the company. But many spin-off finance companies continued to deal with the stock until 1853.

In 1724, SSC started commercial whaling which failed after nine years, losing £177,782. The company became simply an intermediary for dealing with the national debt. Britain's government only restructured the debt after the First World War, which they did without repaying any principal.

Unreasonably high valuations cause bubbles, which will thus continue. People are greedy, subject to group think, and are still swayed by Ponzi and other get-rich-quick schemes. Whenever an investor thinks, "The Emperor's new clothes," think BUBBLE! The 2010 subprime mortgage crisis and today's cryptocurrency come to mind.

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William Hogarth's depiction of South Sea Scheme 1721; (B) shows the devil cutting out fortunes in these times (E). Honesty (D) is broken on a wheel by self-interest (G) & villainy (F). On the bottom left (C) are a Protestant, Catholic, and Jew gambling. In the center is a merry-go-round with *Who'l Ride* (the stock bubble). Bottom right is Trade — dead!

Janvier & de Juillet de chaque année, comme il se pratiquoit pour les autres rentes viagères de Tontine, & conformément aux différens réglemens intervenus pour la police desdites rentes, notamment aux Déclarations des 27 décembre 1727 & 23 juillet 1733; tous lesquels réglemens sont pour les précédentes Tontines, seroient observés pour celle-ci, tant pour les accroissemens que pour les formalités à observer dans les quittances & certificats de vie.

Que les fonds nécessaires pour le payement desdits arrérages seroient remis, suivant les états qui en seroient arrêtés au Conseil de Sa Majesté, aux Payeurs desdites rentes, du produit desdites fermes des Postes, & des Aides & Gabelles, ainsi qu'il est d'usage pour le payement des autres rentes, tant perpétuelles que viagères, assignées sur les Aides & Gabelles, sans que celles créées par ledit Edit pussent être retranchées ni réduites pour quelque cause & sous quelque prétexte que ce pût être, & qu'elles seroient exemptes à toujours de la retenue des Vingtièmes, Deux sols pour livre du Dixième, & de toutes autres impositions généralement quelconques.

Que lors du décès de ceux sur la tête desquels lesdites rentes auroient été acquises, les arrérages desdites rentes, à compter du jour de leur décès, appartiendroient par accroissement aux survivans de la même subdivision dans laquelle ils étoient employés, & seroient distribués d'année en année, au sol la livre, jusqu'au dernier mourant; en sorte que le dernier vivant de chaque subdivision de chacune desdites classes, pourroit seul du revenu de tous les capitaux qui composeroient ladite subdivision, qui ne seroit éteinte au profit de Sa Majesté qu'après la mort du dernier Rentier.

Que ce qui seroit dû d'arrérages desdites rentes & de la portion d'accroissement au jour du décès de chacun des Rentiers, seroit payé à leurs veuve, enfans & héritiers, en rapportant, outre l'extrait mortuaire en bonne forme & les pièces justificatives des qualités, la grosse du contrat de constitution.

Que s'il arrivoit que quelqu'un des acquereurs desdites rentes se fît comprendre sur un faux baptistaire ou acte équipolent, ou par une supposition de nom, dans une classe plus avancée en âge que celle où il auroit dû être, Sa Majesté vouloit que la rente qui lui auroit été constituée, appartînt par accroissement aux autres Rentiers de la subdivision de la classe où il auroit été employé.

Que Sa Majesté, par ses Lettres patentes du 8 juin 1760, a nommé des Commissaires pour faire la vente & aliénation desdits trois millions de livres de rentes Tontines, auxdits sieurs Prevôt des Marchands & Echevins; & que lesdits sieurs Commissaires leur ont fait lesdites vente & aliénation par contrat passé devant Vivien & son confrere, Notaires à Paris, le 27 des mêmes mois & an.

En conséquence, & pour fournir, par lesdits sieurs Prevôt des Marchands & Echevins, à Sa Majesté, le principal desdits trois millions de livres de rentes viagères Tontines, ils ont par ces présentes vendu, cédé, constitué, assis, assigné & promis garantir de tous troubles & empêchemens, fournir & faire valoir à

antoine Joseph Marie Marcellin Mosti fils

d'Etienne Négociant à Cadix pour jouir par lui de la rente ci après sur la tête de Dona Emmanuelle Marie Del Carmen Jeanne Josephe Michelle Ramona Mosti Sa fille âgée de quatre ans acceptés par Pierre Marie Le Gaubert Notaire Conseiller Secrétaire du Roi Maison couronne de France et des Finances demeurant à Paris rue de Monsigny paroisse St Roch Négociant Rentier aussi présent

quatorze Livres

de rente annuelle viagère, dite Tontine, faisant le revenu de une action, pour être employée à raison d'une action dans la Neuvième

subdivision de la première classe de la Tontine créée par ledit Edit; laquelle rente de quatorze Livres lesdits sieurs Prevôt des Marchands & Echevins ont promis & se sont obligés, au nom de Sa Majesté, de faire bailler & payer audit Mosti avec les accroissemens qui y arriveront, par chacune année, par lesdits sieurs Payeurs des rentes de ladite ville, à bureau ouvert, en deux payemens de six mois en six mois, ès premiers jours de Janvier & de Juillet, à compter du premier Janvier mil sept cent soixante & ainsi continuer pendant la vie & jusqu'au décès dudit Sr Mosti.

A avoir & prendre lesdites rentes & accroissemens, par privilége & préférence à la partie du Trésor royal de Sa Majesté, sur les deniers provenans tant de la ferme générale des Postes que de ses droits d'Aides & Gabelles, que lesdits sieurs Prevôt des Marchands & Echevins, ont spécialement, & par privilége, affectés, obligés & hypothéqués à garantir lesdits arrérages & accroissemens bien payables aux termes susdits, jusqu'à leur extinction.

Pour desdites rentes & accroissemens, jouir, faire & disposer par ledit Sr Mosti comme de chose leur appartenante.

La présente constitution est faite moyennant la somme de Deux mille Livres

laquelle somme a été payée par ledit Sr Mosti és mains de M.re Joseph Micault d'Harvelay, Conseiller du Roi en ses Conseils, Garde de son Trésor royal, suivant sa quittance du Trente Un mars mil Sept cent Soixante enregistrée au Contrôle général des finances le Cinq Septembre ensuivant, l'original en parchemin de laquelle quittance est demeuré ci-annexé.

Et se sont lesdits sieurs Prevôt des Marchands & Echevins, dessaisis au profit dudit Mosti desdits deniers provenant tant de ladite ferme générale des Postes que desdits droits d'Aides & Gabelles, jusqu'à concurrence des arrérages de ladite rente, & des accroissemens qui y arriveront pendant la vie dudit Sr Mosti, voulant qu'il en soit fait & mis en possession par qui il appartiendra, constituant à cet effet leur Procureur le porteur des présentes, auquel ils en donnent pouvoir.

Et du jour du décès dudit Sr Mosti les arrérages de ladite rente, & les accroissemens qui y seront arrivés, appartiendront par accroissement aux autres Rentiers de la Neuvième subdivision de ladite classe, mais ce qui sera dû desdits arrérages & accroissemens au décès dudit Sr Mosti sera payé ainsi qu'il est porté audit Edit.

Et pour justifier par lui de son âge ledit Sr Mosti il en a obtenu que son extrait baptistaire de sainte mort mil sept cent cinquante trois et pour traduction en langue Espagnole avec la traduction qui en a été faite en langue française annexés à la minute d'un procès verbal passé devant les Conseillers du Roi Notaires au Châtelet de Paris le vingt huit février mil sept cent soixante un, et ledit extrait délivré par Mr de Cadix légalisé par Mr de Lavalette ambassadeur de France en Espagne le vingt Janvier mil sept cent soixante un.

Promettant, &c. obligeant, &c. renonçant, &c. FAIT & passé à Paris, au Bureau de l'Hôtel de ville, l'an MIL SEPT CENT SOIXANTE-un le Dimanche jour du mois de Mars avant midi. Et ont signé.

Lamblin — Le Rentier Gramberd

Prime — Darlus

Boyer — Jouin

Contenyn

N.° 708.

1.re CLASSE.

9.e Subdivisions.

10.me TONTINE créée par Édit du mois de Décembre 1759.

JE JOSEPH MICAULT D'HARVELAY, Conseiller du Roi en ses Conseils, Garde de son Trésor royal, confesse avoir reçu comptant en cette ville de Paris, de Antoine Joseph Marie Marcellin Mosti fils d'Etienne Négociant à Cadix pour jouir par lui de la Rente ci après sur la tête de Dona Emmanuelle Marie Del Carmen Jeanne Josephe Michelle Ramona Mosti Sa fille âgée de quatre ans

la somme de Deux cent Livres en louis d'or, d'argent & monnoie, pour le principal de Quatorze Livres de rentes viagères, qui lui seront constituées par Messieurs les Prevôt des Marchands & Echevins de la ville de Paris, sur les trois millions de Rentes viagères dites *Tontines*, vendues & aliénées auxdits sieurs Prevôt des Marchands & Echevins, en conséquence de l'Edit du mois de Décembre 1759, registré qu besoin a été; lesdites rentes assignées tant sur la Ferme générale des Postes que sur les droits d'Aides & Gabelles, pour jouir par ledit Sr Mosti de ladite rente de XIIII. L à raison d'une action dans la neuvième division de la Premiere Classe de ladite Tontine, ensemble de la portion qui il doit avoir dans les accroissemens qui surviendront par le prédécès des Rentiers dudit neuvième division de ladite premiere Classe; à commencer la jouissance du premier Janvier mil sept cent Soixante conformément audit Edit, & ainsi qu'il sera plus au long déclaré & énoncé par le contrat de constitution qui lui sera expédié de ladite Rente. De laquelle somme de lui & à moi ordonnée pour employer au fait de ma charge, je me tiens content & en quitte ledit Mosti & tous autres.

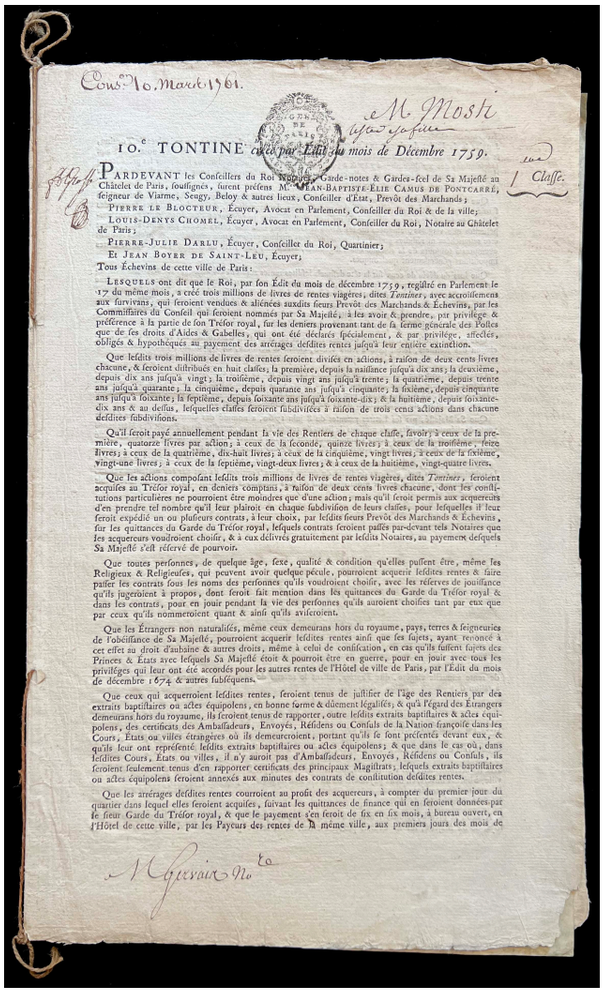
FAIT à Paris le Cinquieme jour de Mars mil sept cent Soixante

Quittance du Garde du Trésor royal. Exercice mil sept cent cinquante-neuf.

Micault d'Harvelay

Me Gervais Notaire.

French Royal Tontine, 1761 #1902



Cous.te No. Mardi 1761.

M. Mosti

10.e TONTINE créée par l'Edit du mois de Décembre 1759.

1 Classe.

PARDEVANT les Conseillers du Roi Notaires, Garde-notes & Gardes-scel de Sa Majesté au Châtelet de Paris, soussignés, furent présens Me. JEAN-BAPTISTE-ELIE CAMUS DE PONTCARRÉ, seigneur de Viarme, Seugy, Beloy & autres lieux, Conseiller d'Etat, Prévôt des Marchands;

PIERRE LE BLOCTEUR, Ecuyer, Avocat en Parlement, Conseiller du Roi & de la ville;

LOUIS-DENYS CHOMEL, Ecuyer, Avocat en Parlement, Conseiller du Roi, Notaire au Châtelet de Paris;

PIERRE-JULIE DARLU, Ecuyer, Conseiller du Roi, Quartinier;

ET JEAN BOYER DE SAINT-LEU, Ecuyer,

Tous Echevins de cette ville de Paris:

LESQUELS ont dit que le Roi, par son Edit du mois de décembre 1759, registré en Parlement le 17 du même mois, a créé trois millions de livres de rentes viagères, dites *Tontines*, avec accroissement aux survivans, qui seroient vendues & aliénées auxdits sieurs Prévôt des Marchands & Echevins, par les Commissaires du Conseil qui seroient nommés par Sa Majesté, à les avoir & prendre, par privilége & préférence à la partie de son Trésor royal, sur les deniers provenant tant de la ferme générale des Postes que de ses droits d'Aides & Gabelles, qui ont été déclarés spécialement, & par privilége, affectés, obligés & hypothéqués au payement des arrérages desdites rentes jusqu'à leur entière extinction.

Que lesdits trois millions de livres de rentes seroient divisés en actions, à raison de deux cents livres chacune, & seroient distribués en huit classes; la première, depuis la naissance jusqu'à dix ans; la deuxième, depuis dix ans jusqu'à vingt; la troisième, depuis vingt ans jusqu'à trente; la quatrième, depuis trente ans jusqu'à quarante; la cinquième, depuis quarante ans jusqu'à cinquante; la sixième, depuis cinquante ans jusqu'à soixante; la septième, depuis soixante ans jusqu'à soixante-dix; & la huitième, depuis soixante-dix ans & au-dessus, lesquelles classes seroient subdivisées à raison de trois cents actions dans chacune desdites subdivisions.

Qu'il seroit payé annuellement pendant la vie des Rentiers de chaque classe, savoir; à ceux de la première, quatorze livres par action; à ceux de la seconde, quinze livres; à ceux de la troisième, seize livres; à ceux de la quatrième, dix-huit livres; à ceux de la cinquième, vingt livres; à ceux de la sixième, vingt-une livres; à ceux de la septième, vingt-deux livres; & à ceux de la huitième, vingt-quatre livres.

Que les actions composant lesdits trois millions de livres de rentes viagères, dites *Tontines*, seroient acquises au Trésor royal, en deniers comptans, à raison de deux cents livres chacune, dont les constitutions particulières ne pourroient être moindres que d'une action; mais qu'il seroit permis aux acquereurs d'en prendre tel nombre qu'il leur plairoit en chaque subdivision de leurs classes, pour lesquelles il leur seroit expédié un ou plusieurs contrats, à leur choix, par lesdits sieurs Prévôt des Marchands & Echevins, sur les quittances du Garde du Trésor royal, lesquels contrats seroient passés par-devant tels Notaires que les acquereurs voudroient choisir, & à eux délivrés gratuitement par lesdits Notaires, au payement desquels Sa Majesté s'est réservé de pourvoir.

Que toutes personnes, de quelque âge, sexe, qualité & condition qu'elles puissent être, même les Religieux & Religieuses, qui peuvent avoir quelque pécule, pourroient acquerir lesdites rentes & faire passer les contrats sous les noms des personnes qu'ils voudroient choisir, avec les réserves de jouissance qu'ils jugeroient à propos, dont seroit fait mention dans les quittances du Garde du Trésor royal & dans les contrats, pour en jouir pendant la vie des personnes qu'ils auroient choisies tant par eux que par ceux qu'ils nommeroient quant & ainsi qu'ils aviseroient.

Que les Etrangers non naturalisés, même ceux demeurans hors du royaume, pays, terres & seigneuries de l'obéissance de Sa Majesté, pourroient acquerir lesdites rentes ainsi que les sujets, ayant renoncé à cet effet au droit d'aubaine & autres droits, même à celui de confiscation, en cas qu'ils fussent sujets des Princes & Etats avec lesquels Sa Majesté étoit & pourroit être en guerre, pour en jouir avec tous les privilèges qui leur ont été accordés pour les autres rentes de l'Hôtel de ville de Paris, par l'Edit du mois de décembre 1674 & autres subséquens.

Que ceux qui acquerroient lesdites rentes, seroient tenus de justifier de l'âge des Rentiers par des extraits baptistaires ou actes équipolens, en bonne forme & dûement légalisés, & qu'à l'égard des Etrangers demeurans hors du royaume, ils seroient tenus de rapporter, outre lesdits extraits baptistaires & actes équipolens, des certificats des Ambassadeurs, Envoyés, Résidens ou Consuls de la Nation françoise dans les Cours, Etats ou villes étrangères où ils demeureroient, portant qu'ils se sont présentés devant eux, & qu'ils leur ont représenté lesdits extraits baptistaires ou actes équipolens; & que dans le cas où, dans lesdites Cours, Etats ou villes, il n'y auroit pas d'Ambassadeurs, Envoyés, Résidens ou Consuls, ils seroient seulement tenus d'en rapporter certificats des principaux Magistrats, lesquels extraits baptistaires ou actes équipolens seroient annexés aux minutes des contrats de constitution desdites rentes.

Que les arrérages desdites rentes courroient au profit des acquereurs, à compter du premier jour du quartier dans lequel elles seroient acquises, suivant les quittances de finance qui en seroient données par le sieur Garde du Trésor royal, & que le payement s'en feroit de six en six mois, à bureau ouvert, en l'Hôtel de cette ville, par les Payeurs des rentes de la même ville, aux premiers jours des mois de

M Gervais No.re

The certificate
Louis XV (1710-1774) issued this tenth tontine for 3 million livres' worth of life annuity income in December 1759. Each share cost 200 livres. It looks like this was a simple life annuity rather than a tontine. This tontine listed eight classes, which paid different annuities according to age:

1. Birth to 10 years old, 14 livres
2. 10-20, 15 livres
3. 20-30, 16 livres
4. 30-40, 18 livres
5. 40-50, 20 livres
6. 50-60, 21 livres
7. 60-70, 22 livres
8. Over 70, 24 livres

Thus a 10-year-old got 14 livres a year for life for a 200 livre annuity (7%). But if they died, the king kept the money. You could only buy whole shares.

Mr. Mosti took out this annuity in 1761 for his four-year-old daughter Antoine for the Class 1 tontine, i.e., birth to 10 years old.

History of tontines
Lorenzo de Tonti suggested his scheme to Louis XIV's Cardinal Mazarin in the 1650s, but parliament rejected it. Tonti also suggested other schemes to raise money like lotteries. But he must have upset someone because he ended up in the Bastille from 1668 to 1675.

The first tontine started in Kampen, Holland, in 1670. In France, the first tontine started in 1689. Later, in the 1700s and 1800s, French tontines became a form of social security.

Alexander Hamilton proposed a type of tontine to reduce the national debt. Back then, governments used lotteries and tontines to raise money needed for public projects. Private building projects also used tontines to finance buildings like the 1790 New York tontine coffee house, which later became the New York Stock Exchange.

But document forgery to maintain income flow to dead people's relatives was common. Tontines and life insurances promoted actuarial estimates of life expectancy, hitherto little researched.

By the end of the 1700s, governments no longer favored tontines to raise revenue, but groups of individuals still used them. Governments tended to underestimate longevity and people like Mr Mosti gamed the system. Girls lived longer than boys, and by four to five years old, French girls were over their period of high infant mortality. He could then get 7% instead of the prevailing 4-5% interest as long as she lived.

Today, insurance actuaries call this adverse selection, which means asymmetric information in a financial contract. For example, a man with frequent dental problems takes out dental insurance. But his brother, who never had dental problems, goes without dental insurance.

In the 1800s, US insurers developed a form of tontines. They demanded monthly payments. But, if you missed a payment, you lost the entire policy. Many insurance companies became corrupt, and some went out of business.

By 1905, tontines represented two-thirds of the US insurance market. The Equitable Life and Mutual Life company, and the New York Life Company were big proponents. That year, there were 9 million active tontine policies in a country with only 18 million households.

After many complaints, New York State started an investigation into life insurance companies. Many felt profiting from the deaths of others, and forfeiting policies for a missed payment was unsavory. The Armstrong Investigation, which looked into tontines, led to banning them.

Tontines today
But today, only Louisiana and South Carolina specifically outlaw tontines. But they are still legal in many other states and countries. Tontines are making a comeback in the US to insure against longevity risk. For example, Tontine IRAs expand retiree's withdrawals as they get older. Each Tontine IRA is part of a community of same-sex, same-age members. Members receive a steady income from their Tontine IRA while alive. But when they pass, the remaining balances are shared among the other members of their tontine community, thus offering higher annuity returns. Tontine legality is the US is still unclear and untested.

With France's Napoleonic Code, a spouse and remaining children inherit the property of a spouse who dies. If instead the couple owns the property in a tontine, the surviving spouse becomes the full owner. The children have no claim, and the state cannot claim inheritance tax.

Agatha Christie, Robert Louis Stevenson, and PG Wodehouse all wrote novels about people who shared tontines and tried to kill each other! People have attributed a number of murders to tontines. If only two people remain sharing a tontine payout, one could murder the other to double their payout. But one could say the same about spouses murdering each other for life insurance payouts!

Data processing today would likely reduce previous tontine fraud risks in the US. But annuities already allow for longevity, and we do not need to increase returns as we get older. Retirees tend to spend less as they get older (except for uncovered health care). But, if you have no-one to leave money to, or start saving too late, tontines give increasing payouts with age, which also addresses inflation.

What are tontines?
In 1653, Lorenzo de Tonti, an Italian banker from Naples living in France, invented a special type of annuity. An annuity is a bond that pays a regular sum until you die.

How do tontines work? A group of subscribers join to help provide for their old age in case they live too long. Each subscriber pays a sum into a group annuity. Thereafter, the insurance pays a regular sum until the last member dies. Thus, the older you get, the more money you get as long as you still live.

Such an agreement between groups who know each other seems gruesome! Insurance companies gave different rates for tontines than for individual annuities because the company continues payments until the last person dies. Actuaries figure the statistics to set the rates.

Tontines and annuities became very popular in France, starting during Louis XIV's reign, to attract money from the wealthy. Monarchs could act like insurance companies receiving capital up front, and paying interest for a limited time. And that is why kings issued them — to get cash!

But there are many types of tontines. Some cease after the last person in the group dies, others cease when the group gets down to a certain number. Some give payouts to offspring, others do not. With increasing royal debt, France banned tontines in 1763.

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THE UNITED STATES

No. 16764 Sixty-five Dollars.

THE Bearer is entitled to receive *Sixty-five* Spanish *milled* DOLLARS, or an equal Sum in Gold or Silver, according to a Resolution of *CONGRESS* of the 14th *January*, 1779.

FIAT JUSTITIA

I Leacock LXV DOLLARS.

J Donnell

NORTH AMERICA

No. 16763 Forty-five Dollars.

THE Bearer *is entitled to receive* Forty-five SPANISH MILLED DOLLARS, *or an* equal Sum *in* GOLD *or* SILVER, *according to a* Resolution *of* CONGRESS *of the* 14th JANUARY, 1779.

SIC FLORET RESPUBLICA

45 Dollars.

I Leacock

J Donnell

THE UNITED STATES

No. 16774 SIXTY DOLLARS.

THE BEARER *is entitled to receive* Sixty Spanish milled Dollars, *or an equal Sum in* Gold *or* Silver, *according to a* Resolution *of* CONGRESS *of the* 14th January, 1779.

DEUS REGNAT EXULTET TERRA

60 Dollars.

I Leacock

J Donnell

NORTH AMERICA

No. 16767 *Forty Dollars.*

THE Bearer is entitled to receive FORTY Spanish *milled DOLLARS*, or an *equal Sum* in *Gold* or *Silver*, according to a Resolution of CONGRESS of the 14th JANUARY, 1779.

CONFEDERATION

40 DOLLARS.

I Leacock

J Donnell

THE UNITED STATES

No. 16767 Fifty-five *Dollars.*

THE *Bearer* is entitled to receive FIFTY-FIVE *Spanish* MILLED DOLLARS, or an equal Sum, in *Gold* or *Silver*, according to a *Resolution* of CONGRESS of the 14th *January*, 1779.

POST NUBILA PHOEBUS

I Leacock 55 Dollars.

J Donnell

THIRTY FIVE DOLLARS

No. 16763 *Thirty-five Dollars.*

THE BEARER is entitled to RECEIVE *Thirty-five Spanish millea* DOLLARS, or an equal Sum in GOLD or SILVER, according to a Resolution of CONGRESS of the 14th January, 1779.

HINC OPES.

35 Dollars.

I Leacock

J Donnell

UNITED STATES

No. 16767 *Fifty* Dollars.

THE BEARER is entitled to receive FIFTY Spanish milled DOLLARS, or an equal Sum in Gold or Silver, according to a Resolution of CONGRESS of the 14th January, 1779.

PERENNIS

50 *Dollars.*

I Leacock

J Donnell

No. 16762 Thirty *Dollars.*

THE Bearer is *entitled to receive* Thirty *Spanish* milled DOLLARS, or an *equal Sum* in Gold or Silver, according to a Resolution of *CONGRESS* of the 14th *January*, 1779.

RECTE FACIES

30 Dollars.

I Leacock

J Donnell

Continental Currency Block Sheet 1779 #1670

What Is Continental Currency Doing in a Stock and Bond Book?
Most people think of Continental Currency as paper money, but some argue it was more like a zero-coupon bond. The high denominations suggest it wasn't just for everyday spending. Instead, people held onto it, expecting repayment with interest after the war. How did it all start?

How Did the British Tax the Colonies?
After the 1763 Treaty of Paris, the American colonies paid only 2–4% of the taxes paid by Britain. To cover war expenses, Britain imposed several taxes:

- **1764:** The Sugar Act
- **1765:** The Stamp Act
- **Later:** The Quartering and Townshend Acts (taxing tea, lead, glass, and paper).

In response, American Patriots boycotted British goods, leading to the repeal of the Sugar and Stamp Acts in 1766 and most of the Townshend and Quartering Acts by 1770. However, Britain kept the tax on tea.

In 1773, when a British tea shipment arrived in Boston, Patriots famously dumped it into the harbor during the **Boston Tea Party**. Britain retaliated with the **Intolerable Acts**, which included closing Boston Harbor and reimposing quartering.

Why Did America Choose War?
Britain paid 96–98% of American taxes; patriots paid 2-4%. But patriots feared higher taxes and resented British mercantilist policies and the Quartering Act. In July 1775, when Britain rejected America's **Olive Branch Petition**, war became inevitable.

Continental Currency: How It Began
The Second Continental Congress, which met in May 1775, authorized both a Continental Army and Continental Currency. Congress issued 11 rounds of currency, each with unique features and denominations:

1. **Feb 1776:** Third issue ($1–8, plus fractional notes like $⅓ and $½).
2. **May 1776:** Fourth issue ($1–8).
3. **July 1776:** First "dollar-less" issue ($2–8, plus $30).
4. **Nov 1776:** Second "dollar-less" issue ($2–8, plus $30).
5. **Dec 1776:** Baltimore issue (third "dollar-less").
6. **May 1777:** Fourth "dollar-less" issue ($2–8, plus $30).
7. **April 1778:** Yorktown inflationary issue ($4–40).
8. **Sept 1778:** Second inflationary issue ($5–60).
9. **Jan 1779:** Final issue (used red and black ink, $1–80).
10. **May 1775:** First issue ($1–8, plus $20 and $30).
11. **Nov 1775:** Second issue ($1–8).

The People Behind Continental Currency
Many founding fathers contributed to designing and producing Continental Currency:

- **Paul Revere:** Engraved plates for the first issue.
- **Benjamin Franklin:** brought the polychrome paper from Paris for the first $20 bills. He also created "nature prints," first used on 1739 Pennsylvania currency. These used leaf skeletons as an anti-counterfeiting device. Franklin also had a copy of Dr. Joachim Camerarius' book, *Symbols and Emblems* (shown below), to create many of the emblems and Latin quotes. Franklin himself created the famous emblems on the fractional notes using the sundial rebus and linked states.
- **David Rittenhouse:** Designed intricate border cuts.
- **Francis Hopkinson:** Added emblems and archery-themed designs in later issues.

Anti-Counterfeiting Features
Continental notes included:

- Unique vignettes and nature prints of leaves
- Two signatures on non-fractional notes.
- Mica fragments and blue fibers in the paper.
- Secret misspellings (e.g., "CURRENCEY" on $⅙ notes).
- Fractional notes with a hidden dot system.
- Counterfeit detector notes printed on pink paper.
- Numbering
- Multiple decorations and type faces, especially in border cuts
- last issue used red and black ink (shown opposite), called "kite faced bills"
- a secret dot system on fractional currency

Camerarius' book, Symbols & Emblems

Franklin's fractional rebus, above and below

INFANTRY RANK	$/month	RANK	$/month
Colonel	75	Surgeon's mate	40
Lt. Col.	60	Sergent Major	10
Major	50	Sergeant	10
Captain	40	Drum Major	9
Lieutenant	26 2/3	Drummer, Fifer	7.5
Ensign	20	Corporal	735
Surgeon	60	Private	6 2/3

Infantry pay in Continental Army

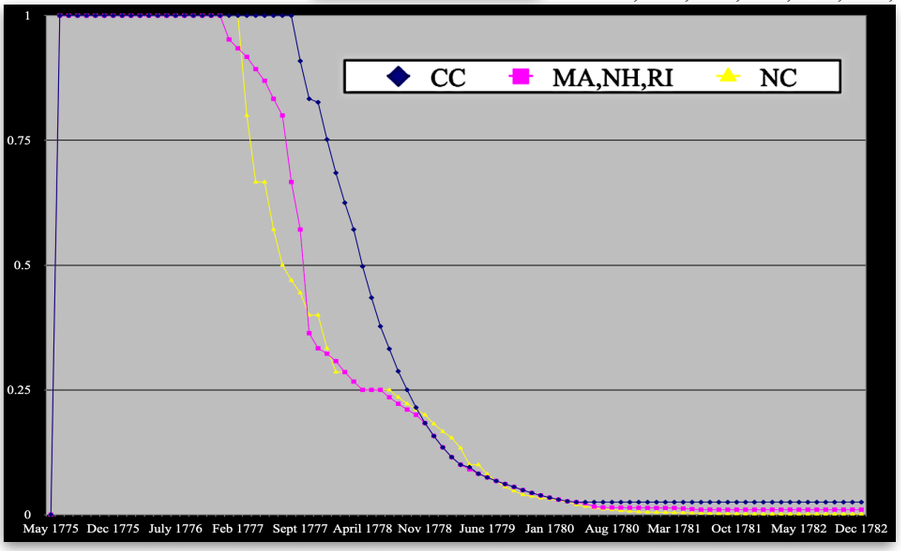
Why Such Strange Denominations?
The denominations were practical for army payments. The chart above shows monthly pay for different army ranks in May 1778. You could pay most ranks monthly salary with just two bills. Today, an army private receives $2,000 a month. Imagine receiving that pay in just two bills. What shop today would accept $1,000 bills?

Fractional notes made it easier to give exact amounts, though these were rarely used for daily transactions. Many query why they issued ⅙, ⅓, ½, and ⅔ dollar notes. Back then, Pennsylvania money of account was 7 shillings and 6 pence to the dollar, or 90 pence, thus $⅓ was half a crown.

Continental notes promised redemption in gold or silver on specific dates. Economics professor Farley Grubb argued that these notes were effectively zero-interest bearer bonds, not fiat money. This is why I include this sheet of notes as a bond rather than currency.

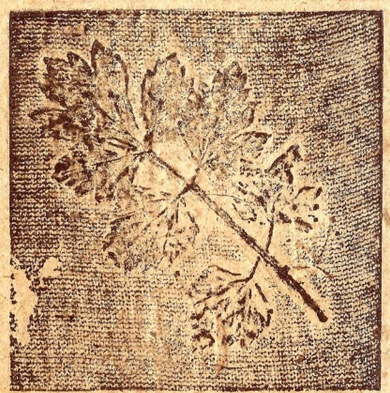
The wording on the notes further confirms this intention: *"The bearer is entitled to received x Spanish milled dollars, or an equal sum in gold and silver according to a resolution of Congress on …."*

Congress's defined redemption structure depended on plausible state-raised taxes. Denominations like $35, $40, $45, $50, $55, $60,



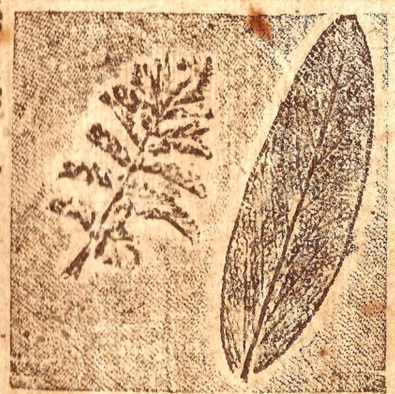
Depreciation of Continental Currency, Massachusetts, New Hampshire and Rhode Island bills, and North Carolina bills.

Sixty-five Dollars.



Printed by HALL and SELLERS. 1779.

¶ Sixty Dollars. ¶



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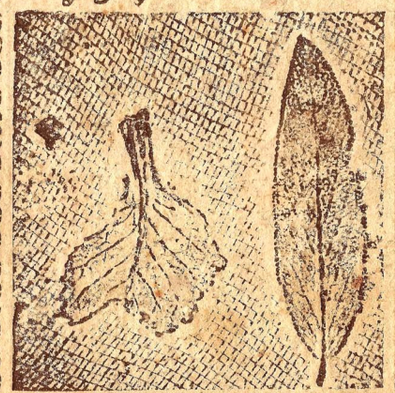
Printed by HALL & SELLERS. 1779.

Fifty-five Dollars.



FIFTY Dollars.

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Forty-five Dollars.

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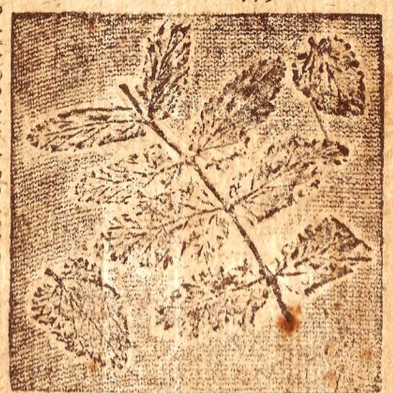
FORTY Dollars.

PRINTED BY HALL AND SELLERS. 1779.



Thirty-five Dollars.

Printed by HALL and SELLERS. 1779.

Printed by HALL and SELLERS. 1779.

Thirty DOLLARS.

and $65, are clearly not intended for spending but for later redemption. But in 1779 and 1780, Congress changed the maturity dates, exposing the infeasibility of payment. Already depreciated, this led to the paper's collapse.

What Happened During Each Issue?

Each currency issue aligned with key events of the Revolutionary War:

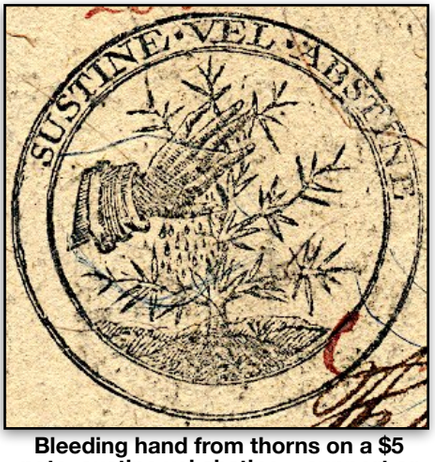
- **May 1775 (1st issue):** Patriots under Maj. Gen Benedict Arnold captured Fort Ticonderoga for its artillery; Bunker Hill followed in June. The first issue was $3 million.
- **Nov 1775 (2nd issue):** Continental forces failed to capture Quebec to try to get the French to fight with them against England.
- **Feb 1776 (3rd issue):** The next month Washington moved Maj. Gen. Knox's artillery, dragged by oxen from Ticonderoga, to confront the British from Dorchester heights. British General Howe then evacuated his army to Nova Scotia.
- **May 1776 (4th issue):** Washington was in New York City.
- **July 1776 (5th issue):** America declared independence. But a month later, the British drove Washington from Long Island into Manhattan.
- **November 1776 (6th issue):** a month before Washington moved to Pennsylvania. In December, Washington defeated the Hessians at Trenton.
- **Feb 1777 (7th issue "Baltimore"):** British were moving across New Jersey to occupy Philadelphia, so the Continental Congress met in Baltimore.
- **May 1777 (8th issue "United States"):** Continental Congress moved back to Philadelphia in March 1777. The British began counterfeiting Continental notes, one of the earliest documented examples of economic warfare. But by October 1777, British General Howe occupied Philadelphia, leaving Burgoyne in the lurch, who surrendered to patriot General Gates at Saratoga. France signed the Franco-American treaty in February 1778, supporting the patriots against the British.
- **April 1778 (9th issue "Yorktown"):** The British still occupied Philadelphia, so Continental Congress met in Yorktown, 100 miles west of Philadelphia.
- **Sept 1778 (10th issue):** This followed three months after the patriot victory at Monmouth Courthouse.
- **Jan 1779 (11th issue):** Final issue, with red and black ink, but depreciation rendered it nearly worthless. This issue had seven iterations, printed from January 1779 until April 1780, by which time a continental dollar was worth only 2-3 cents.

Decline and Legacy of Continental Currency

The 1777 Articles of Confederation promised to redeem continental currency payment in silver or gold. But in 1787, the US Constitution replaced the Articles of Confederation, and the states did not ratify it until June 1788. By then, you needed 250 "continentals" to buy a silver dollar, hence the expression "not worth a continental."

Between August 1790 and March 1792, the US Treasury exchanged $100 of "continentals" for one Spanish milled dollar.

Thunderstorms over the mountains on a $7 note, serenabit = it will clear

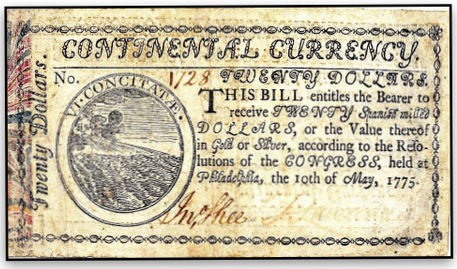


Bleeding hand from thorns on a $5 note, sustine vel abstine = support or abstain (bear with me or let me alone)

In 1792, Hamilton urged Congress to create a bond exchanging $100 of continentals for each $1 of bond, promising 6% interest, with the principal due "later".

We do not know exactly how much continental currency got redeemed. The government finally paid off Hamilton's bonds in 1813. Those who did not redeem their continentals or their bonds simply lost out. Continental Currency was a bold experiment in financing a revolution. While it ultimately failed, its innovations in design and anti-counterfeiting, left a lasting impact on American financial history.

Two birds fighting on $3 note, exitus in dubio est = the outcome is in doubt



$30 1st Issue, front: vi concitate (driven by force), back: cessante vento conquiescemus (when the wind ceases we will rest)

I show some examples of vignettes and their Latin inscriptions above.

Below is a picture of one of Hamilton's bonds belonging to George Washington. As the bond is for $185.98, Washington must have surrendered $18,598 in continentals to get this. Interestingly, it shows interest payable at 3% not 6%.

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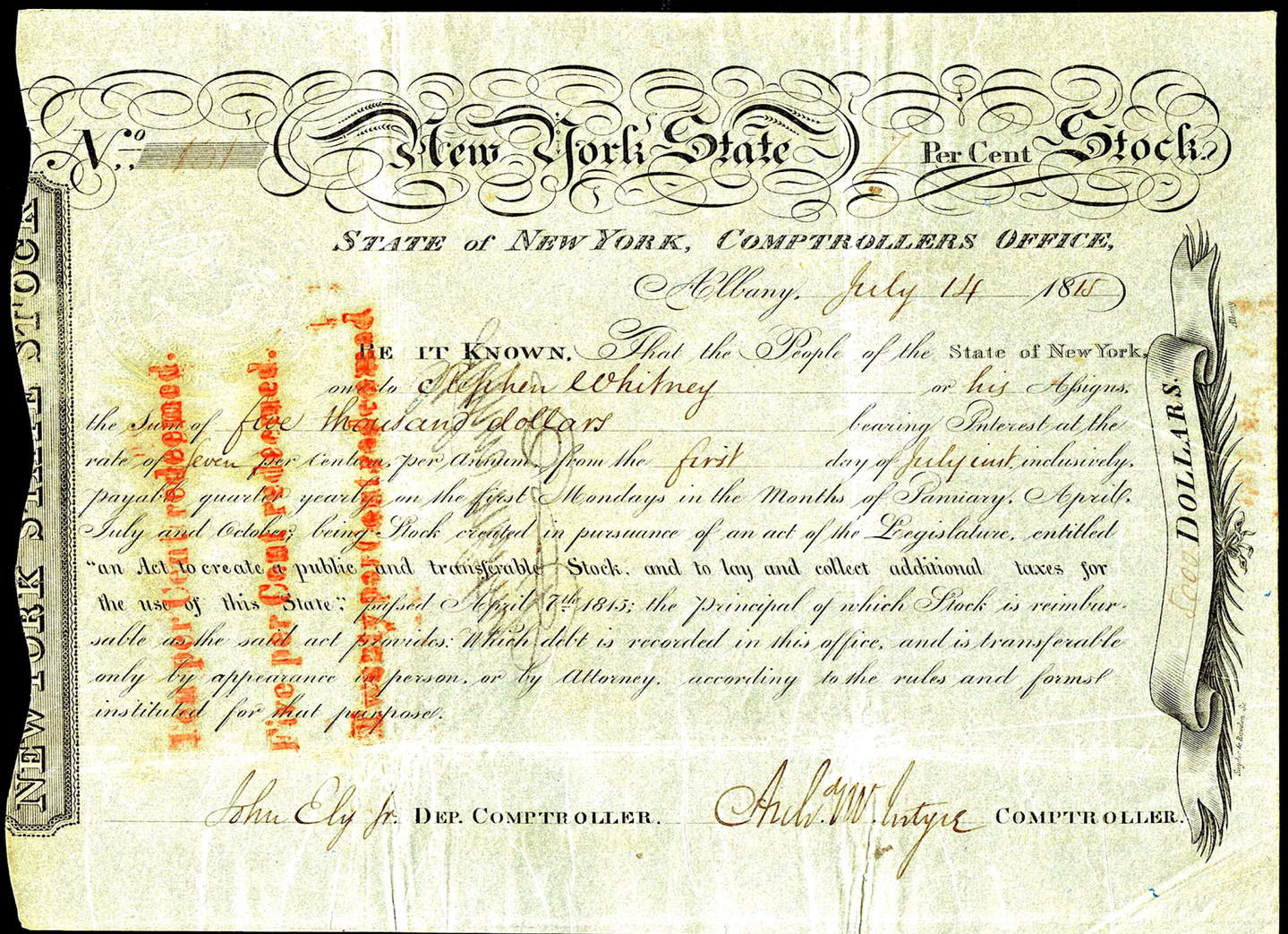
George Washington's bond for his continental dollars, courtesy Museum of American Finance



No. 131 New York State 7 Per Cent Stock.

STATE of NEW YORK, COMPTROLLERS OFFICE,

Albany, July 14 1815

BE IT KNOWN, That the People of the State of New York, owe to Stephen Whitney or his Assigns, the Sum of five thousand dollars bearing Interest at the rate of Seven per Centum, per Annum, from the first day of July inst. inclusively, payable quarter yearly, on the first Mondays in the Months of January, April, July and October; being Stock created in pursuance of an act of the Legislature, entitled "an Act to create a public and transferable Stock, and to lay and collect additional taxes for the use of this State"; passed April 7th 1815; the principal of which Stock is reimbursable as the said act provides: Which debt is recorded in this office, and is transferable only by appearance in person, or by Attorney, according to the rules and forms instituted for that purpose.

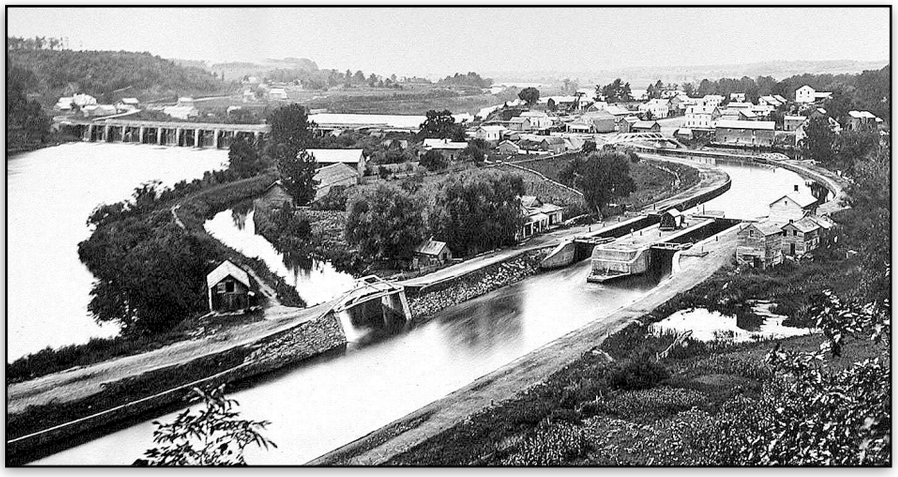
John Ely Jr. DEP. COMPTROLLER. Archd. W. Intyre COMPTROLLER.

NEW YORK STATE STOCK

Four DOLLARS.

1826 Erie Canal Completion Medal Silver. Pan & Neptune/NY Arms. HK-1000; 45mm, PCGS MS 62

NY State bond 1815, Erie Canal Medal 1826 #2374 & #2860



Erie Canal Aqueduct over Mohawk River at Rexford, note paths & lock

363-mile Erie Canal from Albany to Buffalo

The three main revolutions in history were:

- Agricultural from around 10,000 BCE
- Industrial from around 1750 CE
- Informational from around 1950 CE

The Industrial Revolution occurred in two phases:

- 1750-1850 with the steam engine, iron, machine tools, and factories. It began in Britain, then spread to Europe and the US.
- 1875-1925 with oil, electricity, steel, mass production and big business. This started in the US, then spread to Europe and Japan.

Canals started in China during the Warring States era (481-221 BCE). China's Grand Canal, the longest, measured 1,115 miles!

There are three types of canals:

1. **Lateral canals** which follow existing riverbeds. They are flat and straight.
2. **Contour canals** which follow isolines on hills, thus they meander, but need no locks.
3. **Summit canals** which connect two bodies of water over mountain ranges, needing locks.

The first locks started in Holland and used portcullis gates. These were single gates which rose in a channelled "pound lock." Later, Leonardo da Vinci invented the mitre gate — two gates that open sideways, locking at an angle against higher water pressure.

The first major summit canal was the **Midi Canal** in France, also called the Canal de Deux Mers, which joined the Atlantic Garonne River to the Mediterranean. French King Francis I hired Leonardo da Vinci to design it in the 1500s. Built between 1662 and 1681, it was 150 miles long, with a minimal depth of 6 feet and minimal width of 52 feet. Saving a month of sailing time around Spain, it also protected ships against Barbary pirate attacks. But, by 1857, railroads displaced the Midi Canal.

While Ambassador to France in 1789, Thomas Jefferson studied the Midi Canal and envisaged a similar canal from the Potomac to Lake Erie (230 miles). But it was not to be.

The Appalachian Mountains posed a significant barrier to westward expansion in the United States. However, the **Mohawk Valley**, located between the Catskill Mountains to the South and the Adirondacks to the North, provided a critical corridor linking the Hudson River to the Great Lakes.

Erie Canal — Governor Clinton's Ditch

Before the canal, oxen had to pull loads over rough terrain averaging 2 mph. New York Governor DeWitt Clinton hyped the canal, which Jefferson called, "Little short of madness!" Indeed, many ridiculed Clinton, calling it Clinton's Folly, or Clinton's Ditch. It required a rise of 566 feet from Albany to Buffalo and used 83 locks and 18 aqueducts.

Gov DeWitt Clinton

Funding started in 1808. The $5,000 7% bond opposite was part of that early funding. Stephen Whitney (1776-1860) was one of the wealthiest merchants in NYC who made a fortune in cotton. When he died, he left an estate estimated at $8-15 million.

Clinton committed his state of only 1 million people to a $5-6 million project, though the final bill reached $7.2 million. Average farmers then earned $100 a year. After a survey, they started construction in 1817.

But Clinton had vision. He got the state of New York to approve a $7 million loan in 1817. The canal would be 40 feet wide and 4 feet deep, with tow paths on each side for mules to pull the boats. The canal was too shallow for sailboats or steamers. Instead, horses or mules pulled flat-bottomed barges. A single mule could pull a 14-foot by 78-foot barge with 30 tons of cargo, five times what they could pull on rails. We forget the initial reason to build rails was to reduce friction for horse-drawn carts, not for steam engines!

Eight to nine thousand laborers, mainly Irish immigrants, built the canal with the help of 10,000 horses and mules. They paid the laborers 50 cents a day plus food and drink. Early on, they dug with spades and carted the earth away with wheelbarrows. Later, horses pulled plows and carted the earth away. They had no professionally trained engineers.

The canal opened in 1825, then the largest American infrastructure project in history. Canal bonds for the state of New York paid 6% for 20 years and sold well. But many still thought Clinton was crazy.

But it became an astounding success. Transport costs from Albany to Buffalo plummeted from $100 per ton (via ox-wagon, taking 45 days) to just $5 per ton (via barge, taking six days). Commerce boomed, and the canal helped to open the American West, settling five new states. By 1836, tolls had paid off the canal.

To access the Midwest, they linked the canal to Lake Erie, 325 feet lower than Lake Ontario. They later built many feeder canals, one of which, the Oswego Canal, led to the eastern end of Lake Ontario (see map at left).

The canal made New York City the US's leading port, supplanting Baltimore and Philadelphia. It was such a success that, from 1834 to 1862, they had to enlarge it. Today, tourism is the major source of boat traffic along the canal.

In 1837, the Mohawk and Hudson Railroad opened a bypass of the slowest part of the canal. Then, in 1842, the New York Central Railroad opened a continuous line from New York City to Buffalo. Railroads competed, but even by 1901, the canal still shipped 13 times the tonnage of railroads!

The Erie Canal Medal

New York City had C. C. Wright, America's premier medalist, engrave the medal opposite to celebrate the canal's opening. The obverse shows Pan on a cornucopia (signifying the bounty of the Great Lakes and the West), embracing Neptune (signifying the Atlantic). You can see the lighthouse of Sandy Hook (in New Jersey) on the right, south of Long Island. The legend reads, *UNION OF ERIE WITH THE ATLANTIC.* In the exergue is R. *DEL.* (i.e., Archibald Robertson designed the scene), and *W. SC.* (Wright Sculpsit, i.e., Wright engraved the die.)

The reverse shows the New York State Coat of Arms in the center, with locks and the canal on the left. On the right is the harbor and view of New York City in 1815. The legend reads, *ERIE CANAL COMM 4 JULY 1817 COMP 26 OCT 1825* (commissioned July 4, 1817, completed October 26, 1825). In the exergue is *C.C. WRIGHT SC.* (engraved) 1826, and *PRESENTED BY THE CITY OF N YORK.*

This is the first listed medal in the Hibler-Kappan reference of *So-Called Dollars*, listing American medals. They struck 11-51 in gold, 40 in silver and 150 in white metal.

References

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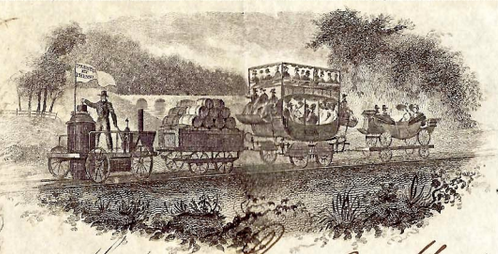
https://en.wikipedia.org/wiki/Erie_Canal
https://en.wikipedia.org/wiki/DeWitt_Clinton#/media/File:DeWitt_Clinton_by_Rembrandt_Peale.jpg
https://www.so-calleddollars.com/Events/Erie_Canal_1826.html
are-making-a-comeback-and-no-its-not-a-movie-230183

50

ONE HUNDRED DOLLARS A SHARE

BALTIMORE & OHIO RAIL ROAD



No. 2191 Shares 20

Be it known that, Royal Makepeace is entitled to Twenty SHARES, in the CAPITAL STOCK OF THE Baltimore & Ohio RAIL ROAD COMPANY, on which Eighty five Dollars have been paid, transferable only, on the Books of the Company, in the City of Baltimore, by the said Royal Makepeace, or his Attorney.

Witness the Seal of the Company, attested by the Signature of the Treasurer thereof. Baltimore 17th Nov 1837

Cancelled by the Pres't

[redacted]

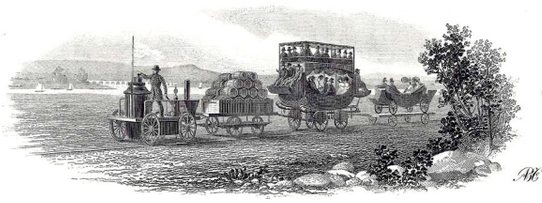
[redacted] Treasurer

B/C

COMMON STOCK

100 100

NUMBER C519405



SHARES 100

The Baltimore and Ohio Railroad Company

Incorporated by the State of Maryland, February 28, 1827.

This Certifies that GUNTHER & CO. is the owner of ONE HUNDRED shares of the par value of One Hundred Dollars each, full paid and non-assessable, of the Common Capital Stock of The Baltimore and Ohio Railroad Company transferable only on the books of the Company at its transfer office by the holder hereof in person or by duly authorized attorney, upon the surrender of this certificate. The holders of Preferred Capital Stock to the amount of Sixty Million Dollars ($60,000,000) now issued and such additional amounts as may be lawfully issued from time to time by the President and Directors of the Company pursuant to the resolutions of the stockholders duly adopted April 11, 1899, are entitled to receive in each year out of the surplus net profits of the Company for the current year such yearly dividend (non-cumulative) as the Board of Directors of said Railroad Company may declare up to but not exceeding four per centum, before any dividends shall be set apart or paid upon the Common Stock. In Witness Whereof, the said Company has caused this Certificate to be signed by its duly authorized officers this APR 22 1957

REGISTERED BANKERS TRUST COMPANY, REGISTE

ASSISTANT SECRETARY.

H. F. Simpson PRESIDENT

R. S. B. Hartz SECRETARY

[signature] TRANSFER AGENT

CANCELLED MAY 24 1957

International Bank Note Co. New York

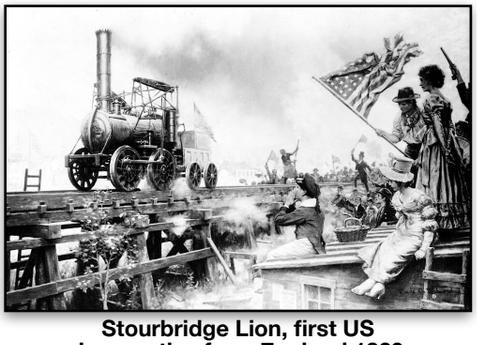
SHARES $100. EACH

Baltimore and Ohio Railroad, 1837 #1877 & 1885

Did they use coal or wood in steam engines?
Coal comes in five different types:

Lignite, brown coal, or hard coal, has the lowest carbon content.
Sub-bituminous coal is black and dull and has a higher carbon content
Bituminous coal is shiny smooth and on close inspection, has layers
Anthracite is black and shiny, also called soft coal, and has an even higher carbon content
Coke, grey and porous, is a bituminous coal that has been heated without oxygen to drive off volatiles (notably coal gas, coal tar, and water). It has the highest carbon content.

In England, they used coal for locomotives as they had access to coal, not wood. The US imported their first locomotive from England in 1828, the "Stourbridge Lion," designed to burn coal. The lion made its maiden run the next year. But it was too heavy for the strap-iron tracks with only hemlock stringers below.



Stourbridge Lion, first US locomotive from England 1829

In the US from 1820 to 1840, they only mined lignite, which was difficult to burn and was very expensive. It cost $7-10 a ton, but by the 1850s, it had fallen to only $3 a ton. The whole eastern seaboard was being cleared of wood for agriculture and industry, so wood was plentiful and cheap. So, US trains ran on wood until around 1850. The Baltimore and Ohio Railroad (B&O) used wood for their passenger trains till the mid-1850s. The East was largely deforested by 1860.

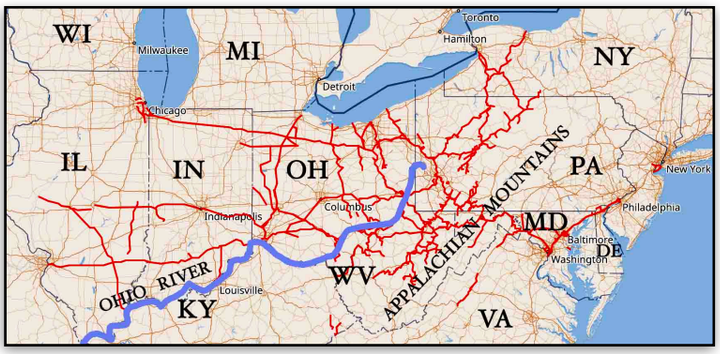
By 1859, 235 of 246 B&O locomotives had switched to coal. In the late 1850s, anthracite from Pennsylvania became more plentiful, and burnt more easily than lignite. The energy content of a ton of anthracite was equivalent to 2.6 tons of wood, making it more efficient. Railroads initially changed engine's fireboxes for coal. We now know they did not need to. They experimented with different fireboxes because they did not know any better.

In New England, coal remained too expensive because they were too distant from the Pennsylvania coalfields. So in New England, they used wood until 1875. Chicago had access to the South Illinois coal fields, so they converted to coal sooner. However, Illinois coal was high in sulfur content, making it too smelly for passenger trains.

In summary, from 1830 to 1850, America used wood. In the 1850s, they used coal in areas close to coal deposits. Between 1860 and 1880, all major US railroads changed to coal. By 1880, 90% of US railroads used coal.

Coke was even more efficient than anthracite. It also had a major advantage: it produced less pollution. English home owners preferred coke for their fireplaces. But coke was too expensive for industry except for making steel, where it was necessary in the production process.

In the US, they tried coke instead of anthracite for passenger trains but found it too expensive. US railroads found if they carefully fired the coal, it decreased pollution for the passengers. This involved several processes: opening all air inlets into the firebox; putting in small frequent loads of coal; distributing them well around the firebox; keeping the fire uniform; and spraying water on the coal so that coal dust did not blow off and hit the passengers. I recall traveling on the Durango-Silverton Narrow Gauge steam railroad, ten years ago. By the end of the journey, coal dust had matted my hair and turned my face grey.



B&O lines running from Baltimore west of Appalachians

The Cumberland Road
This was the first federally built road, built from 1811 to 1837. It connected the Potomac and Ohio Rivers from Cumberland, PA to Wheeling WV, later extending 620 miles to Vandalia, IL. But within three years, Congress transferred upkeep costs to the states as railroads were already more efficient.

The Cumberland Road

The Certificate
In 1827, 25 merchants and bankers cooperated to expand trade from Baltimore, trying to catch up with New York's Erie Canal success.

They decided on a railroad, capitalizing the B&O at $3 million. By 1854, they made $2.7 million a year in profit from 380 miles of track, feeding the growing westward settlement away from the original 13 states.

This cemented Baltimore as the third largest port in the US after New York and Philadelphia. Both stock certificates (left) show the first US built steam locomotive, the Tom Thumb, built by the Peter Cooper for the Baltimore and Ohio Railroad in 1830.

The B&O Railroad
The Baltimore and Ohio (B&O) was the first US railroad to carry goods **and** people. In 1830, they opened their first line from Baltimore to Ellicott City, 13 miles west. Horses pulled carriages over cast strap-iron sitting on a base of wooden stringers, kept at a constant width by wooden cross-ties. But the strap-iron sometimes broke under the weight of steam engines, causing a dangerous "snake" which could pierce carriages and kill people.

Peter Cooper's Tom Thumb locomotive ran over this line, showing people its feasibility. By 1852, the line extended 38 miles to Wheeling, Virginia, reproducing the Cumberland Road route and linking with the Ohio River. By 1855, the US had 50% of the world's rail track, but only 5% of the world's population. By 1861, B&O had expanded into 13 states. A quarter of their freight income came from carrying bituminous coal mined in the Alleghenies, part of the Appalachians.

Cast iron T-shaped rails came in the mid 1840s but they still broke. In the 1870s, 30-feet long steel rails from the Carnegie works became standard, and much sturdier.

During the Civil War, the Union controlled 20,000 track miles versus the Confederacy's 9,000 miles. The Union also controlled 96% of railroad equipment. As one of the first modern wars, both sides used rail to transport troops, food, and supplies. But the Confederacy had a deteriorating railroad system, compounded by Union attacks. Foraging previously used by armies was not realistic to supply large armies.

The Confederacy also attacked the Union's rail system, especially the B&O, the Union's lifeline and supply chain.

John Work Garrett (1820-1884), B&O president, liaised so closely with Lincoln they called it Lincoln's Railroad! Garrett's father had previously owned a mercantile and banking company with a fleet of Conestoga wagons from Baltimore. John started buying B&O stock early and became a director in 1847, and president in 1858. His son, T. Harrison Garrett, amassed a coin collection which sold in 1981 for a record $25 million.

After the Civil War, the B&O expanded to Chicago and St. Louis. The biggest railroad then was the combined Union Pacific-Central Pacific, which by 1869 spanned the US. B&O is now part of CSX, which with the Union Pacific, Canadian Pacific and Canadian National, are the four largest US railroads.

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UNITED STATES OF AMERICA

1000

PACIFIC MAIL STEAMSHIP COMPANY.

FIRST MORTGAGE
SIX PER CENT. GOLD BOND.

No. 0000

1000

The Pacific Mail Steamship Company, for value received, hereby promises to pay to the bearer, or to the registered holder hereof, the sum of ONE THOUSAND DOLLARS in gold coin of the United States, at its office in the City of New York, on the 1st day of August, One thousand nine hundred and eight, with interest thereon at the rate of six per cent. per annum from the date hereof, payable semi-annually, in like gold coin, on the 1st days of February and August of each year, at the office of the said Company, in the City of New York, upon the presentation and surrender of the annexed coupons as they severally become due.

This bond is one of a series of five thousand bonds of the same denomination, tenor, and effect, numbered from 1 to 5000, both inclusive, each and all of which bonds are secured by a First Mortgage or Deed of Trust of even date herewith, and subject to the terms and conditions of which this bond is issued and held, duly executed and delivered by the said Steamship Company to the Central Trust Company of New York, as Trustee, granting, bargaining, selling, assigning, releasing, conveying and confirming to the said Trustee all its franchises, shares of stock in the China Steamship Company, Limited, and other property, real or personal, including its present fleet of vessels, and seven vessels to be hereafter constructed, and any and all other vessels or property hereafter purchased or acquired with the proceeds of said bonds.

ONE THOUSAND DOLLARS

This bond is subject to redemption at any time at ten per cent. above par and accrued interest, may be registered in the manner and with the effect provided in said mortgage, and shall not become obligatory until the certificate endorsed hereon shall have been signed by the said Trustee.

In Witness Whereof the said Steamship Company has caused this bond to be signed by its President, and its corporate seal to be hereunto affixed, attested by its Secretary, and has hereunto attached coupons with the name of its Treasurer printed thereon, this first day of August, One thousand eight hundred and ninety.

ATTEST

SPECIMEN
Secretary.

SPECIMEN
President.

AMERICAN BANK NOTE Co. NEW YORK

STATE OF NEW YORK

Pacific Mail Steamship #2244 & # 2245, Panama Railroad #1798 & Panama Canal #2141

Commercial America crossed the continent in four stages:

1. PMS steamships with a risky Panamanian isthmus crossing
2. PMS steamships and the Panama Railroad
3. The transcontinental railroad
4. The Panama Canal

Pacific Mail Steamship Certificate
Pacific Mail Steamship (PMS) was one of only two non-railroad stocks in the Dow Jones Transport Average (which preceded the DJIA). The other was the American Express Company (see page 111). The vignette on the $1,000 gold certificate on the left may represent the SS China, the SS City of Peking, or the SS City of Tokio (sic) ships. The goddess Fortuna pours water into the sea, symbolizing the flow of abundance, reflecting her power over fate. She holds a rudder representing her ability to steer fate.

PMS
They built these steamships around 1847, the largest vessels ever built then. The SS China weighed 10,200 tons. The SS City of Peking and her sister ship SS Tokio weighed 5,000 tons. Iron hulled, they sported four masts, two funnels, and main deck passenger accommodations (as shown opposite).

In March 1845, after the US annexed Texas, Mexico severed relations with the US In September, President Polk sent an emissary to buy New Mexico and California. But Mexican president Herrera refused to receive him, so Polk prepared for war, which started in 1846.

In 1847, Congress, eager to develop Oregon Territory, authorized a mail steamship service every two months between New York City and Astoria (at the mouth of the Columbia River in Oregon). Arnold Harris won the contract for $199,000 a year, which William Aspinwall bought out shortly after.

William Aspinwall 1807-1875, founder of PMS and Panama Railroad

William Aspinwall and five other New York City merchants founded Pacific Mail Steamship (PMS). With a lucrative government contract of $199,000 a year, this was a slam-dunk for an outlay of $400,000!

So, they raised $400,000 and built three steamers. But the steamers ended up costing $600,000. So, Congress pre-paid $199,000 (one year's mail) to cover their shortfall.

In January 1848, James Marshall had found gold at Sutter's Mill, California, while it was still in Mexican hands. The next month, the US signed the treaty of Guadalupe Hidalgo, ceding over 500,000 square miles to the US, expanding her territory by one-third.

In July, Col. Mason, Governor of California, with his lieutenant, William Sherman (later of Civil War fame) checked out Marshall's gold claims. Mason knew many had claimed gold discoveries over the years, but he wanted to be sure. And indeed, there it was!

To prove to the US government it was real, he sent an estimated 230 ounces of gold nuggets and dust with a Lt. Lucien Loeser. Loeser left in August and telegraphed Washington upon arriving in New Orleans in November. On December 5, President Polk announced the gold discoveries to Congress. The next day it was front page news all over the country.

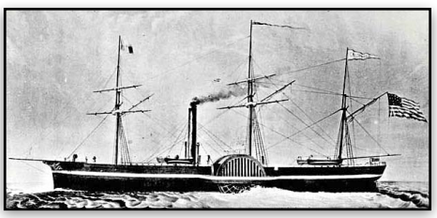
Mason's gold arrived in Philadelphia on December 9, 1848, the day after another who in August. It reached Washington on December 9th, the day after a David Carter deposited 1804 ounces of gold, also from California. That month, the Philadelphia Mint struck 1,389 "CAL" quarter eagles, creating an early US commemorative coin.

1848 CAL Quarter Eagle reverse, courtesy Heritage Auctions, HA.com

Some say they also used this gold to strike two gold award medals, each around 20 ounces (the Zachary Taylor and the Winfield Scott medals). But the gold likely came from another deposit.

PMS had launched their first side-wheeler, SS *California,* in New York City. It sailed round Cape Horn, arriving in San Francisco in February 1849, ready for the West coast run between Balboa (close to Panama City) and San Francisco. The 49ers (named after the year of the gold rush) besieged Sacramento, 46 miles inland from San Francisco. San Francisco's population exploded from a few hundred in 1847 to 55,000 by 1855.

PMS had no idea they had discovered gold — in fact, the news broke during their side-wheeler *SS California's* first voyage. They had been completely oblivious to the gold fever!



SS California, PMS's first steamship 1848

By 1850, PMS's capitalization increased from $400,000 to $2 million. They wanted to establish an Atlantic line from New York City to Panama, so they bought out the US Mail Steamship Line in 1851. Steamships continued on the Atlantic and Pacific sides. A mule pack and canoes, traversing Panama, connected Chagres and Balboa, but it took a 7-14 days, and risked death from malaria and cholera.

The Panama Railroad
Aspinwall then founded the Panama Railway Company. He started the Atlantic terminus on a treacherous island of mangrove and poisonous manchineel trees, 25 miles east of Chagres. Spaniards call it "manzanilla de la muerte" (little apple of death). The fruit can kill you if eaten, and the tree sap causes a highly irritant dermatitis. The *Guinness Book of Records* says it is the world's most dangerous tree.

Originally called Manzanillo Island, they renamed it Aspinwall Island. Today it is Colon, Panama. In 1850, PMS used a steam-driven pile driver to build a terminus above the waterline in Aspinwall. They found a quarry near Porto Bello 29 miles away and loaded sandstone onto barges, towing them to Aspinwall for backfill.

As they built the railroad, the rail bed kept sinking into the swamp, necessitating more and more backfill! After 20 months of work, they had only completed 8 miles of track across the isthmus. Their original $1 million of stock-raised money ran low.

But, as luck would have it, in November 1851, a hurricane caused two nearby paddle steamers to disgorge 1,000 passengers. Most were desperate to get to the California gold fields and willingly paid $4 each plus $3 per 100 lb. of baggage to be taken to the end of the 8-mile track. Although this raised only $10,000, it was enough to stimulate more investors, and construction continued. Each year, travelers happily paid increasing fares to travel increasing distances across the isthmus!

Finally, in January 1855, the Panama Railroad Company completed the full 47 miles to cross the isthmus in just 3½ hours! It had cost $8 million and 5,000 to 10,000 lives.

Wood rotted so quickly in Panama, they had to replace the pine railroad ties with lignum vitae, an expensive and heavy wood that did not rot. It was so tough, they had to make pre-drilled holes and use screws, not spikes. They converted all wooden bridges to iron. Even today in Panama, they still use a hard wood related to teak that will not rot.

The railroad charged $25 per person for the 47-mile journey which people eagerly paid. This would be like $2,500 per person for a 47-mile journey today! Until the Panama Canal opened, it was the world's most profitable railroad, making money from both freight and passengers.

What happened to PMS & Panama Railroad?
By 1855, PMS had 18 steamers: some on the Atlantic side from New York City to Colon, and some on the Pacific side from Balboa to San Francisco.

During the Civil War, the Confederate Navy tried to attack PMS steamers carrying Californian gold. The Union responded by bottling up Confederate ports and ordering Union soldiers on all PMS steamers.

In 1865, the US government gave PMS $500,000 a year to deliver mail from San Francisco to Hong Kong. That year, PMS bought out the Atlantic Mail Steamship Co. for $4.5 million. By 1866, their capitalization had increased to $10 million. Soon, PMS

PANAMA RAIL ROAD COMPANY.

Panama Rail Road Co.

No. 16050 — 10 SHARES of $100

This is to Certify, that Wm. Jos. Taylor — are entitled to Ten Shares of the Capital Stock of the Panama Rail Road Company of One hundred dollars each, transferable only on the Books of the Company at their office in this City, on the surrender of this Certificate by said Shareholder or Attorney.

NEW YORK Nov. 22 1850

David Hoadley President.

Henry Smith Treasurer.

Benjamin F. Corlies, 31 Nassau St. N.Y.

COMPAGNIE UNIVERSELLE DU CANAL INTEROCÉANIQUE DE PANAMA

Société Anonyme

Statuts déposés chez Me. Champeh... Notaire à Paris les 20 Octobre et 29 Novembre 1880.

CAPITAL SOCIAL: 300,000,000 DE FRANCS

DIVISÉ EN 600,000 ACTIONS DE 500 FRANCS.

Action de Cinq Cents Francs au Porteur.

LIBÉRÉE DE DEUX CENT CINQUANTE FRANCS.

No. 370,257

Par délégation: G. Auguin

Le Président-Directeur: Ferd. de Lesseps

Un Administrateur: [signature]

ALLEMAGNE, ANTILLES, AUSTRALIE, AUTRICHE, BELGIQUE, BOLIVIE, BRÉSIL, CHILI, CHINE, COSTA-RICA, DANEMARK, EQUATEUR, EGYPTE, ESPAGNE, ETATS-UNIS DE COLOMBIE, ETATS-UNIS DE L'AMER. DU NORD, FRANCE, Gde BRETAGNE, GRÈCE, GUATEMALA, HONDURAS, ITALIE, JAPON, MEXIQUE, NICARAGUA, NORWÈGE, PAYS-BAS, PÉROU, PORTUGAL, RUSSIE, RÉP. ARGENTINE, SALVADOR, SUÈDE, TURQUIE, URUGUAY, VENEZUELA

ASIE — EUROPE — AMERIQUE DU NORD — AMERIQUE DU SUD — OCÉANIE — AFRIQUE

STERN, Graveur, PARIS.

SOCIÉTÉ ANONYME DE PUBLICATIONS PÉRIODIQUES.—IMPRIMERIE P. MOUILLOT, 13, QUAI VOLTAIRE. — 25170.

DROIT DE TIMBRE DE 0f10c PAYÉ AU TRÉSOR — Décision du 7 décembre 1885

CONTRÔLE — CANAL INTEROCÉANIQUE DE PANAMA

TROISIÈME VERSEMENT

Reçu Cent vingt cinq francs à Paris le 5 février 1886

LE CAISSIER.

DROIT DE TIMBRE DE 0f10c PAYÉ AU TRÉSOR — Décision du 7 décembre 1885

CONTRÔLE — CANAL INTEROCÉANIQUE DE PANAMA

QUATRIÈME VERSEMENT

Reçu 125 Francs

PARIS 24 SEPT 8..

LE CAISSIER.

COMPAGNIE DU CANAL INTEROCÉANIQUE DE PANAMA

started regular shipping to China, Hong Kong, Japan, and Australia.

PMS advertising postcard showing a Chinese junk and a temple at Shanghai

PMS's profitability declined when the Union Pacific and the Central Pacific completed the transcontinental Railroad route in 1869. But shipments across the Atlantic and Pacific continued. People still used the Panama Railroad, but their profitability also dropped.

In 1925, the Dollar Steamship Company bought out PMS. In 1938, the US government had to bail them out. Their name changed to American President Lines, a privately owned company, which is now the world's third largest container shipping company as a subsidiary of France's CMA CGM.

Panama Canal

The Panama Railroad was a separate company from PMS, but William Aspinwall was the founding investor in both. Both companies cooperated with each other. PMS stimulated San Francisco's development (where it was based) and helped it develop into a major city.

The French, under Ferdinand de Lesseps, built the Suez Canal from 1858 to 1869 using 30,000 forced Egyptian laborers, who cut a 120-mile-long channel. In 1880, de Lesseps started a 48-mile canal in Panama too. But he was a businessman, not an engineer, and had not studied the project or the area properly (see his stock certificate left).

Yellow fever and malaria killed 22,000 men. France soon realized she could not even maintain such a canal, let alone finish it. Back then, the mosquito was unknown as the vector of malaria and yellow fever. In 1889, construction stopped. Four years later, the French left. In 1897, the Englishman, Ronald Ross, discovered mosquitos carried malaria. And in 1900, the American, Walter Reed, discovered that mosquitos also carried yellow fever.

Nicaraguan stamp of Momotombo Volcano

In 1898, Philippe Bunau-Varilla, head of a French canal syndicate, hired William Cromwell, a US lobbyist, to persuade the US to take over the project and buy out France. The US was verging on war with Spain that year. And it had taken 67 days for the US navy vessel "Oregon" to rush from San Francisco to the Caribbean. President "Teddy" Roosevelt vowed he would build a canal.

Initially, they chose Nicaragua as a route. But in 1902, a US lobbyist Cromwell (whom France had hired) noticed Nicaraguan stamps printed by the American Bank Note Company showing the Momotombo Volcano erupting that year. He mailed these to all senators to persuade them that larva and fire might destroy a Nicaraguan canal. Although Teddy Roosevelt wanted the Panamanian route, the Senate at the time was hell-bent on the Nicaraguan route. But Teddy got his way.

The French agreed to sell their interest for $40 million. In 1903, the US made a treaty with Columbia (of which Panama was then a part), but their congress did not ratify it. So the US supported Panamanian secession from Columbia to construct the canal, then control it. The US projected a construction cost of $387 million. They paid Panama $10 million in a lump sum, followed by a yearly fee. In 1921, the US paid Columbia $25 million to compensate for Panama's secession.

The United States constructed the Panama Canal between 1904 and 1914. They lost only 5,609 lives because medical researchers by then had discovered the vectors of yellow fever and malaria. During American construction, they built a larger cross-Panama Railroad to help remove excavated soil.

Chief Engineer John Stevens oversaw mosquito control programs, developed locks, and rebuilt the Panama Railway into a special system to remove excavated soil. Giant hydraulic crushers replaced the small French machines. And, unlike de Lesseps, Stevens realized they needed locks. The first ships passed through in 1914, two years ahead of schedule.

In 1935, they finished the Madden Dam creating Madden Lake (Alajuela Lake) with water storage for Panama Canal's gravity-fed locks (see map at bottom). In 1939, they made larger locks. Rainfall fills the lakes to give water to fill the locks.

Eventually, Panamanians felt the canal belonged to Panama, so in 1977 Carter gifted it to Panama in 1999 as long as Panama guaranteed permanent neutrality of the canal.

The Atlantic entrance is in Colon Harbor, passing through the three-stage Gatun Locks in the Northwest into Lake Gatun. Ships exit through the Culebra Cut, then the one-stage Pedro Miguel locks into Miraflores Lake, then the two-stage Miraflores locks. They then pass Southeast under the Bridge of the Americas next to Balboa, south of Panama City (see top right map). The Pacific is 20 cm higher than the Atlantic. The Culebra (previously called Gaillard) cut runs through the Panamanian Continental Divide at the Sierra de Veraguas, which rises 530 feet above sea level.

Since the Panama Canal Authority took over in 2000, tonnage throughput has increased 36%. The two dams create hydro-electric power, 75% of which is not used by the canal and is

Panama Canal construction 1907

sold. But the Suez Canal still competes for Asian traffic to America's East Coast.

The maximum vessel size fitting through is called a Panamax (fits in a 1,000 by 110-feet lock). But since the invention of container ships in 1956, they grew larger. From 2010 to 2105, 205-230 million tons passed through the canal each year, generating $2 billion in tolls.

A $5 billion expansion of locks opened in 2016, doubling cargo capacity with locks of 1,400 by 180 feet. Vessels this size are called "Neo-Panamax". Larger vessels we now call super-Panamax or post-Panamax. This led to a 20% increase in tonnage throughput in 2017. But there is concern Lake Gatun could start running out of water to fill the locks despite the new locks using water saving basins. But climate change has further reduced water levels and new solutions will have to be found.

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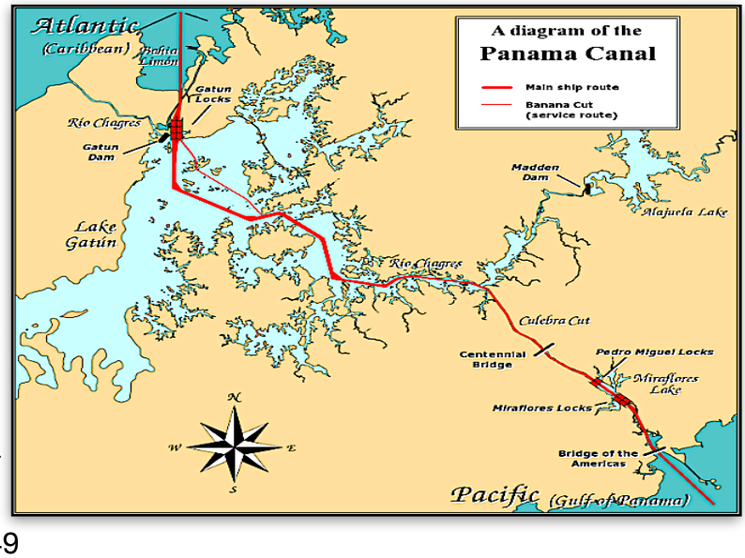
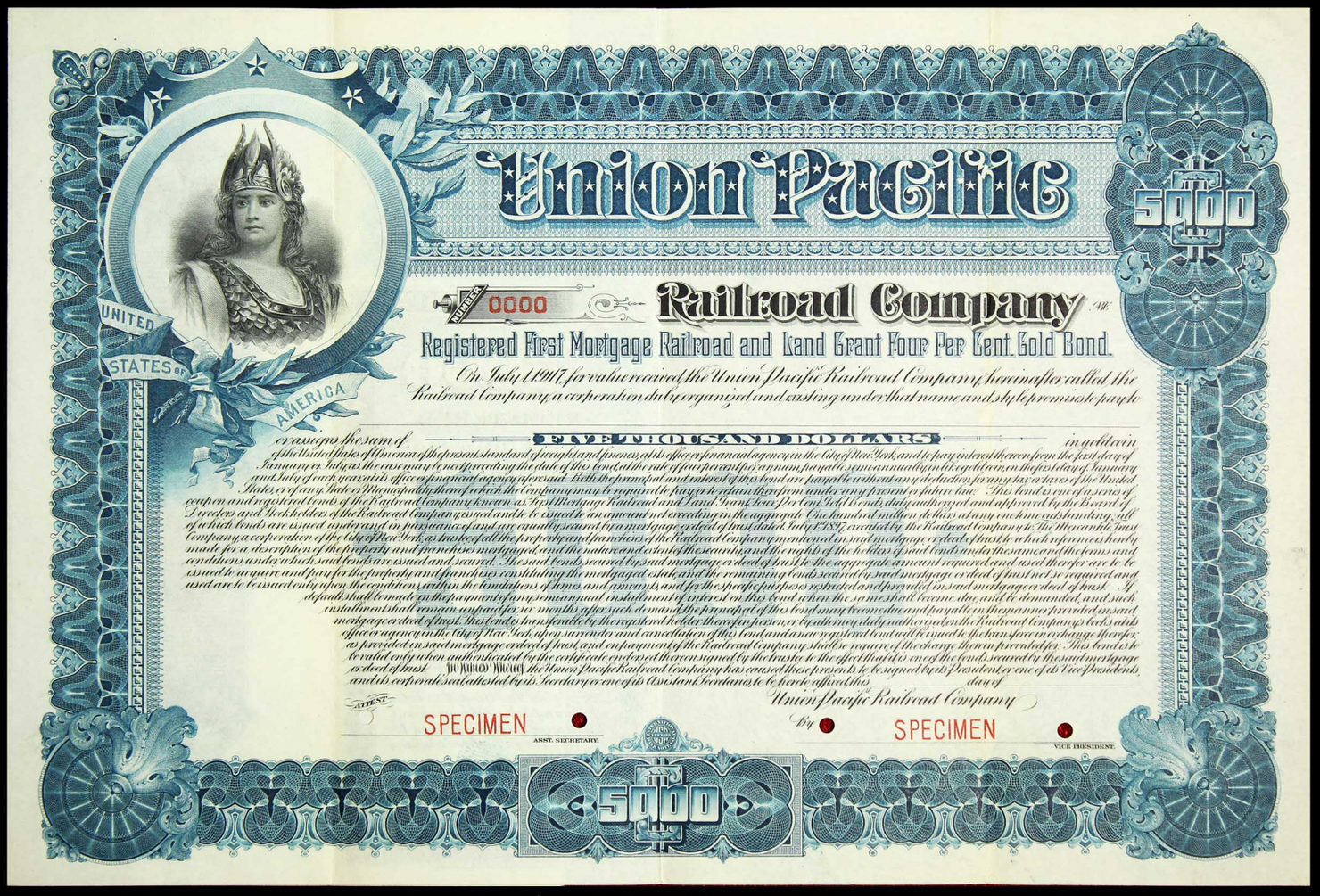
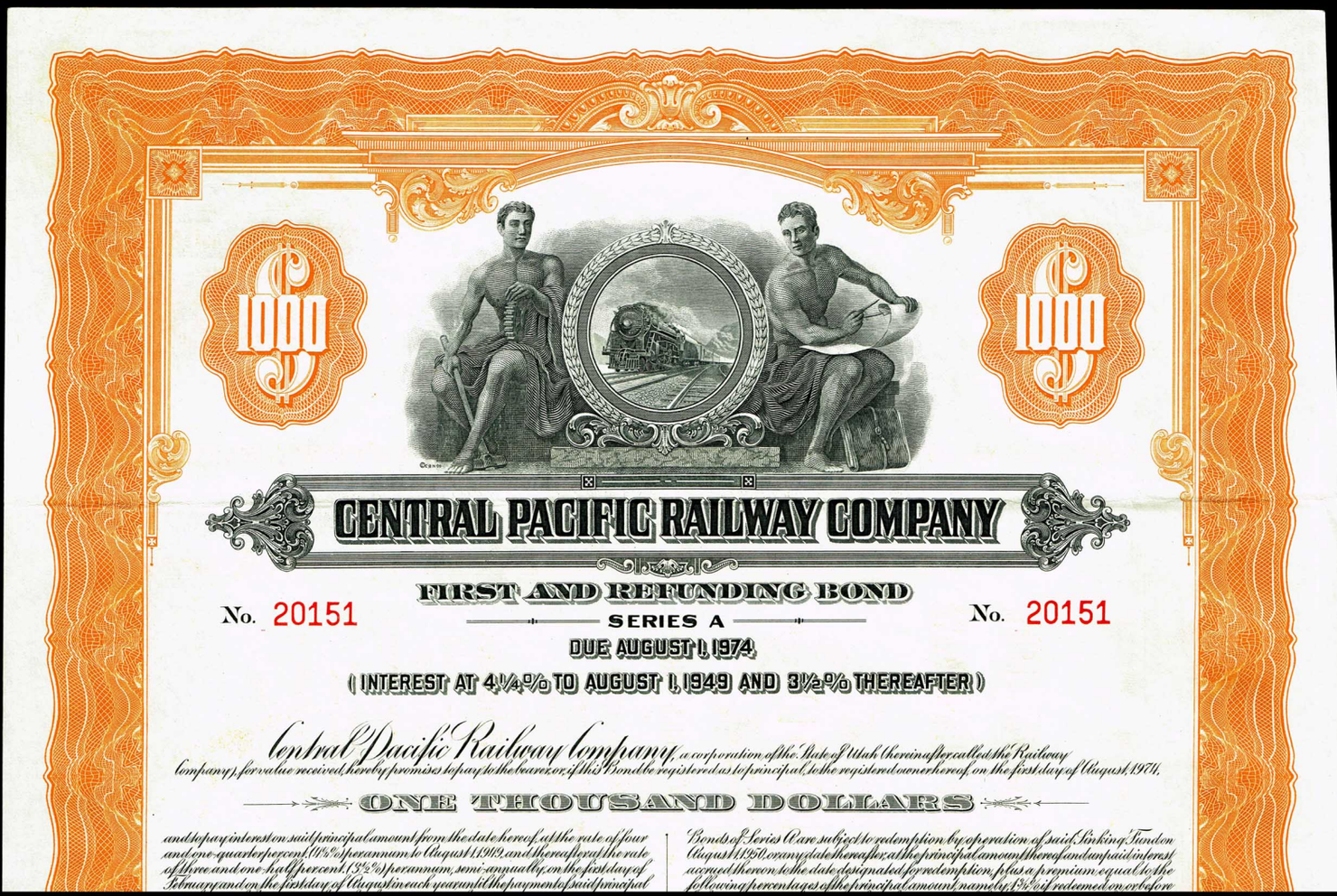



Union Pacific
5000
UNITED STATES OF AMERICA
0000
Railroad Company
Registered First Mortgage Railroad and Land Grant Four Per Cent. Gold Bond.
FIVE THOUSAND DOLLARS
SPECIMEN
ASST. SECRETARY.
SPECIMEN
VICE PRESIDENT.
5000


1000
1000
CENTRAL PACIFIC RAILWAY COMPANY
FIRST AND REFUNDING BOND
SERIES A
No. 20151
No. 20151
DUE AUGUST 1, 1974
(INTEREST AT 4¼% TO AUGUST 1, 1949 AND 3½% THEREAFTER)
ONE THOUSAND DOLLARS

Union Pacific #1899 & Central Pacific #1881 form Transcontinental Railroad, 1869

The Union Pacific Bond
The vignette of this Union Pacific bond shows the personification of America — an appeal to patriotic Americans to buy the bond. Stars on her armored breast piece represent the states. The laurel in her headpiece symbolizes victory. In case there is any doubt, they spell out UNITED STATES OF AMERICA on a ribbon tied around an olive branch, representing peace!

Red is Central Pacific from West; blue is Union Pacific from East, started at Council Bluffs, IA, just east of Omaha, NE, crossing Missouri River

Before the transcontinental railroad, crossing the US was a dangerous six-month trek. The first alternative was a steamer around Cape Horn. This took six weeks and was also dangerous and very expensive.

I presented the next two alternatives four pages back.

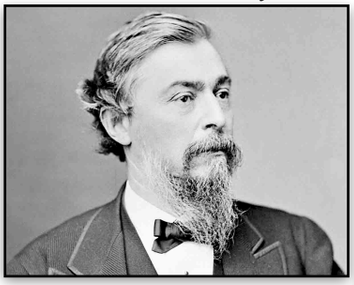

Durant, Physician turned businessman

Photo of Promontory Point where the railroads joined in 1869

Judah and Strong lay out a railroad
Theodore Judah was a civil engineer obsessed with a transcontinental railroad, and laid out a route for it. In 1859, Daniel Strong, a storekeeper in Dutch Fleet, CA, wrote to him, offering to show him a more realistic route, which Judah's was not.

The two met and formed the Central Pacific Railroad Company. Judah then convinced four Californian businessmen (the "Big Four") to back them. Judah surveyed the route and presented his survey to congress in October 1861. The next year, Congress and Lincoln passed the Pacific Railroad Act. In 1863, Judah sailed from California to New York to get financing but died from yellow fever caught on his rail journey in Panama.

Theodore Judah, Central Pacific Civil Engineer

Lincoln also got to choose some of the details and decided on Council Bluffs, Iowa, just east of the Missouri River, as the eastern terminus of the transcontinental railroad.

The Credit Mobilier Scandal of 1872
Thomas Durant, a physician turned businessman, bought a controlling interest of over $2 million of Union Pacific stock. He also started the Credit Mobilier company, an independent construction company that built for Union Pacific (UP). The US Government agreed to pay UP $32,000 per mile of track. But Durant unnecessarily increased the length of the tracks to line his pockets.

Credit Mobilier also charged more than normal for their services to UP, further profiting Durant. They also bribed many congressmen. Then in 1867, US Congressman Oakes Ames distributed cash bribes and $9 million in discounted stock for favorable votes on UP's activities.

Five years later, a New York newspaper, *The Sun,* broke the story fingering 15 influential politicians. They included the Speaker of the House, the Secretary of the Treasury, the Vice President, and Rep. James Garfield (later to be the US President).

The Central Pacific also had their own construction company with the same arrangement, so the "Big Four" lined their pockets, too. But they had no scandal!

The Last Spike, painting by Thomas Hill 1881, showing Promontory Summit, note single Chinese laborer central left

Promontory Point where the railroads met
In 1865, UP started at Council Bluffs, Iowa, on the eastern bank of the Missouri River. The bridge over the river to Omaha, NE, cost $1 million. They hired Civil War Veterans, many of whom were Irish who did a great job. UP faced Native American resistance, notably from the Sioux, Cheyenne, and Arapaho tribes.

The Central Pacific started from the California end. They also hired Irish laborers whom they shipped to California. But many left for the Nevada silver mines. So, they tried to get recently emancipated black slaves from Mexico. This failed too. They then petitioned Congress to release 5,000 Confederate prisoners. That failed too. So they tried 50 Chinese laborers on a one-month trial basis. Despite their slight physique, they turned out to be excellent laborers and developed great expertise in explosives and tunnel blasting.

Each railroad wanted to lay more track than the other to make their $32,000 per mile. Both their managements egged their own sides on. Finally, on May 10, 1869, they met at Promontory Summit in west Utah. Celebrations were the order of the day. Manifest Destiny now encompassed the US!

Within five days of the golden spike driven in at Promontory Point in 1869, UP ran a 1,900 mile regular service from Omaha to San Francisco for $65. What once took six months now took only 66 hours!

In 1890, the famous "Overland Limited" luxury train made the same run in 71 hours, with more stops, sleeper and dining cars, and a journey of 2,189 miles. Emigrant class cost $45, and first class cost $170. Today by Amtrak, it takes 44 hours and costs only $179!

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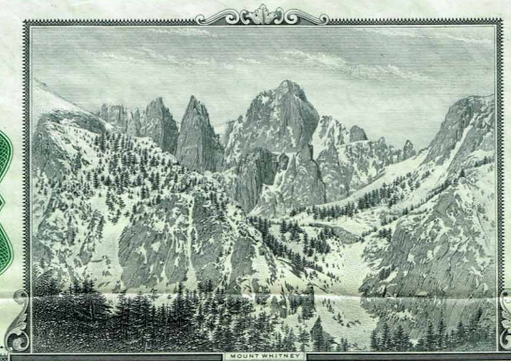
UNITED STATES OF AMERICA

$1000



MOUNT WHITNEY

$1000

CITY OF LOS ANGELES

WATER WORKS BOND

ELECTION 1907.

No. 00000 CLASS I.

Los Angeles, California, December 1, 1907.

On the first day of December, A.D. 1947 the City of Los Angeles will pay to the bearer, at the office of the City Treasurer of the City of Los Angeles, in Los Angeles, California, or at the banking house of Kountze Brothers in the City of New York, State of New York, at the option of the holder hereof, the sum of **One Thousand Dollars** with interest thereon at the rate of 4½ per centum per annum, payable semi-annually on the first day of June and the first day of December at the office of the City Treasurer of the City of Los Angeles in Los Angeles, California, or at the banking house of Kountze Brothers in the City of New York, State of New York, at the option of the holder hereof upon presentation and surrender of the interest coupons hereto attached; principal and interest payable in lawful money of the United States. This bond is issued in pursuance of the provisions of the Act of the Legislature of the State of California, which became a law February 25, 1901, and amendments thereof, authorizing the incurring of indebtedness by cities for municipal improvements and the charter of said city and the constitution and other laws of said state.

It is further certified that all requirements of the constitution and laws of California and of the charter and ordinances of the City of Los Angeles, have been fully complied with by the proper officers in the issuing of this bond; that this issue of bonds has been authorized by a vote of two thirds of the duly qualified electors of said city voting on the question of such issue, at a special election duly and regularly called and held in said city on the 12th day of June, 1907, and that the total amount of this issue, together with all other indebtedness of said city, does not exceed the limit prescribed by the constitution and laws of the State of California.

COUNTERSIGNED:

EUREKA

MAYOR OF THE CITY OF LOS ANGELES.

SPECIMEN

CITY CLERK OF THE CITY OF LOS ANGELES.

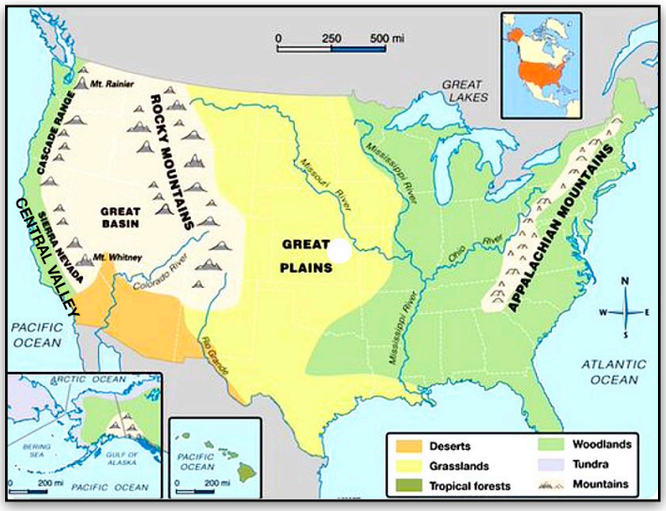
SPECIMEN

TREASURER OF THE CITY OF LOS ANGELES.

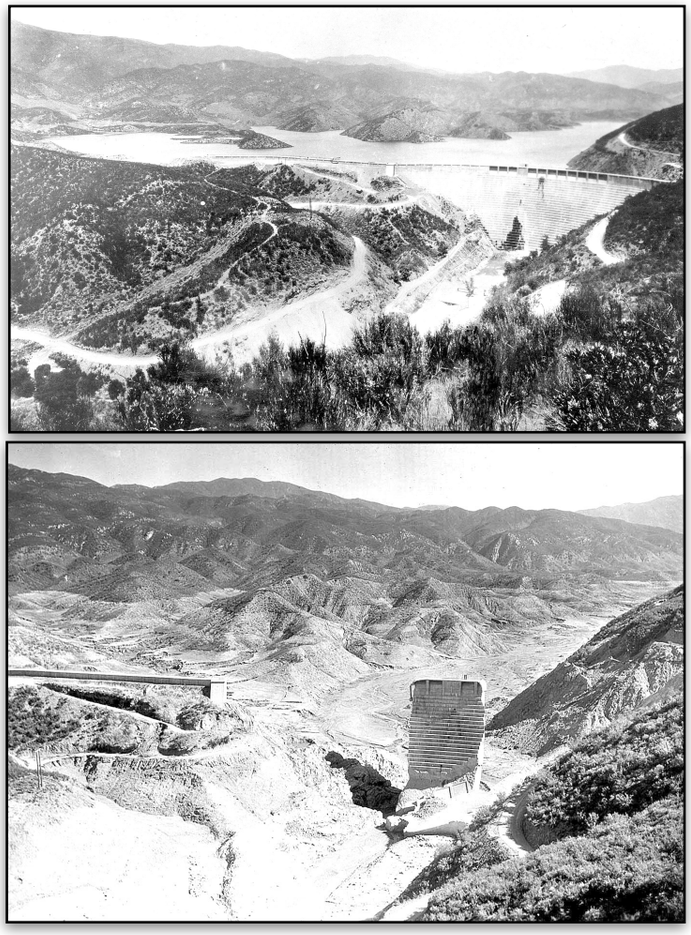
STATE OF CALIFORNIA

AMERICAN BANK NOTE COMPANY, NEW YORK.

A history of the West's most precious commodity: water #2068



Physical map of USA showing mountains and rivers



St. Francis Dam before collapse above, after collapse below

Water problems in LA and Southwest
Marc Reisner's 1986 book *Cadillac Desert,* painted a bleak future. Today it is even bleaker. The continental divide (the Rockies) splits America into east and west. And in the West, the Central Valley lies to the west of the Cascade and Sierra Nevada ranges, and the Great Basin lies to the east.

Average American families use 300 gallons of water a day, mostly toilet, shower, faucet, and washer. The seven Colorado River states (AZ, CA, CO, NM, NV, UT, and WY) divide rights for 5.4 trillion gallons of river water a year. But in 2023, figures for river flow were 1.9 to 4 trillion gallons a year, and this is decreasing. Farmers use over 70% of the water for rice, cotton, alfalfa and almonds, four of the most water-intensive crops in the world! And the government even encourages it ("use it or lose it"), despite its obvious unsustainability!

Lake Powell, as of July 2024, is down to 36% of its 8 trillion gallon capacity. It loses 300 billion gallons a year in seepage and evaporation. The Ogallala Aquifer, covering 174,000 square miles and up to 800 feet deep, has decreased up to 300 feet in some places.

The government could encourage conservation. They could get farmers to switch to other crops, abolish their "use it or lose it" policy, redistribute water rights, and create competitive water markets. They could also implement conservation technologies. But it is too little too late. In July 2024, Biden announced spending $0.4 billion to save 0.016 trillion gallons a year in the West.

William Mulholland
William Mulholland, an itinerant Irish laborer and sailor, arrived in LA in 1877. Just 9,000 people lived there with insufficient water to support more. He got a job with Fred Eaton at the private LA City Water Company. Mulholland rose to Superintendent in 1886, but in 1898, LA did not renew their contract. Fred Eaton became city mayor 1898-1900 and brought water under the city's control, forming the LA Department of Water and Power, with Mulholland as boss in 1902.

From 1877, Mulholland and Easton were friends, and both shared a vision of a larger LA. By then, 100,000 people lived in LA, a testament to Mulholland's intimate knowledge of the local water systems and ability to supply water.

Dishonest seizure of Owens Valley
They also knew about a town in Nevada called Tonopah, settled by whites from 1860 to 1900. They had irrigated 75,000 acres from Owens Lake, the terminus of Owens River, 4,000 feet higher than LA. Mulholland and Eaton dishonestly appropriated water rights from Owens Valley for a gravity fed aqueduct to LA. From 1907 to 1913, they built a complex 233-mile-long aqueduct. When the water flowed into LA, Mulholland famously said, "There it is. Take it." An aquifer in the San Fernando Valley, next to LA, acted as underwater storage.

By 1924, Owens Lake dried up. Locals sabotaged the aqueduct. But by then, the Owen Valley economy had collapsed anyway.

Though duplicitous, Mulholland was a self-taught civil engineer, receiving an honorary doctorate from UC Berkeley. When asked whether he would like to be LA mayor, he fittingly replied, "I'd rather give birth to a porcupine backward!"

The St. Francis Dam
By 1920, LA's population had risen to over half a million. From 1924 to 1926, Mulholland designed the St. Francis Dam, a concrete gravity dam in northern LA County as a storage reservoir in case of drought or damage to the aqueduct. But his design flaws and a defective soil foundation led to its collapse. He also later increased the dam height by 10 feet, increasing the reservoir capacity from 10 billion to 12 billion gallons.

Soon after completion, cracks appeared which Mulholland and his juniors declared expected. In addition, seepage started, which he described as the driest dam of its size he had ever seen. He declared further cracks the next year expected and ordered them filled with oakum and grouted. They treated further cracks the same way in 1928, despite growing alarm among residents.

On March 12, 1928, the dam gave way, killing 431 people, demolishing several towns and the hydro-electric power stations below. At least a dozen investigations followed. They said the geology of the area guaranteed the dam's ultimate failure because of defective foundations. One problem they pointed to — water leaked under the dam and rock formations below, lifting the dam up. Another dam Mulholland had consulted on collapsed in San Gabriel. Imagine an unqualified heart surgeon with 431 deaths!

But Mulholland accepted the blame. He retired that year, lived a secluded life and died seven years later from a stroke at 80. Since then, California has passed laws to regulate civil engineering professionals.

Another Mulholland Dam also stood in Hollywood. Residents downstream petitioned LA who decided to keep the water level permanently low, and place a huge earth berm downstream on the dam's face to decrease uplift. It still stands.

The bond
I show the 1907, 40-year $1,000 4.5% bond opposite. The City of LA Water Works is likely the same as the LA Department of Water and Power, formed in 1902 with Mulholland as boss. The vignette shows Mount Whitney, the highest peak in the lower 48 States.

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GOUVERNEMENT DE LA REPUBLIQUE CHINOISE

EMPRUNT 5½% OR DE 1913 DU GOUVERNEMENT DE LA PROVINCE DE PETCHILI

5½%

£500,000 STERLING

ÉMIS EN VERTU D'UNE DÉCISION DE L'ASSEMBLÉE DE LA PROVINCE DE PETCHILI.

OBLIGATION DE £20 AU PORTEUR № 17959

Anvers, le 4 Avril 1913.

LE MINISTRE DE CHINE À VIENNE.
THE CHINESE MINISTER IN VIENNA.

GOVERNMENT OF THE CHINESE REPUBLIC

GOLD LOAN 5½% OF 1913 OF THE GOVERNMENT OF THE PROVINCE OF PETCHILI

5½%

£500,000 STERLING

CREATED BY VIRTUE OF A RESOLUTION OF THE ASSEMBLY OF THE PROVINCE OF PETCHILI.

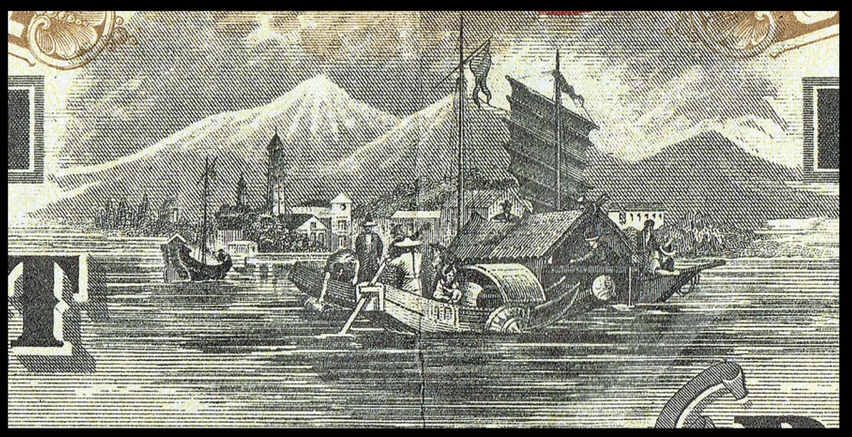
BOND FOR £20 TO BEARER

Antwerp, 4th April 1913.

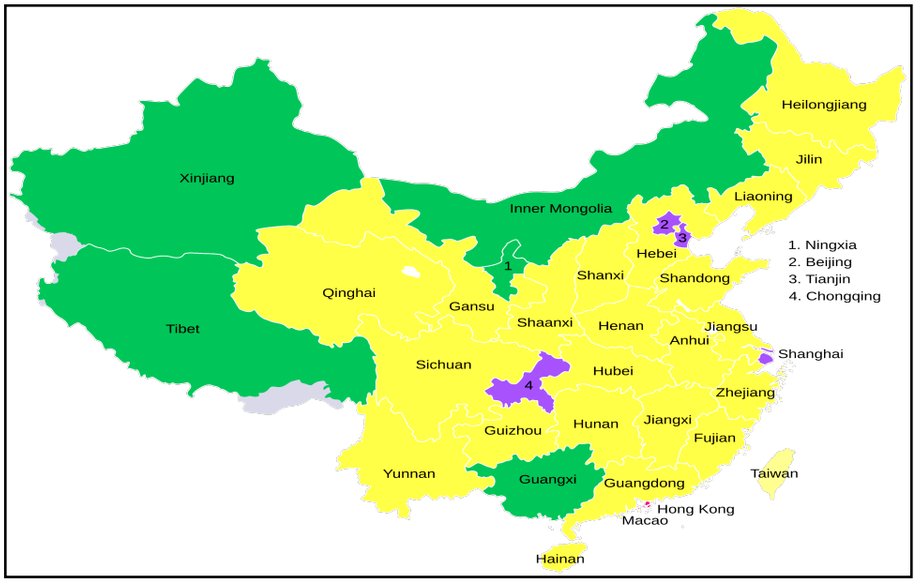
VU POUR CONTRÔLE - VERIFIED BY:
BANQUE DE REPORTS, DE FONDS PUBLICS & DE DÉPÔTS.
SOCIÉTÉ ANONYME

AGENT DÉLÉGUÉ - AGENT DELEGATE

J. VERSCHUEREN - ANVERS



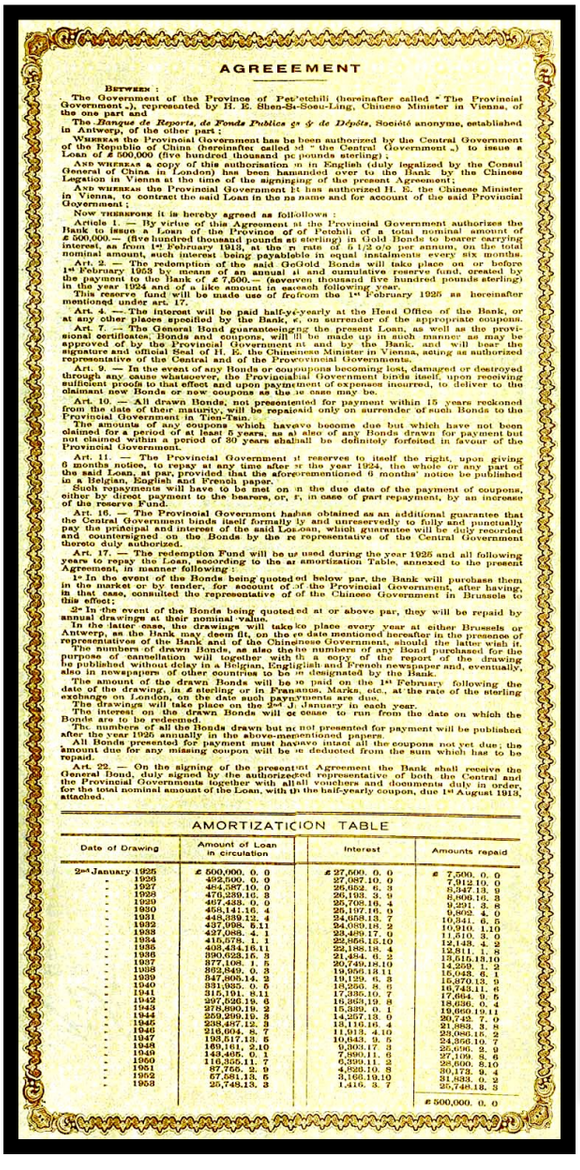
Petchili bond, 1913. Hyped scripophily rarity. #2186



Map of China. Yellow = provinces, Green=autonomous regions. 2 = Beijing, 3 = Tianjin

The Bond

In 1911, after the new Republic of China (ROC) had overthrown the last Emperor, they sought international capital to develop their new nation.



AGREEEMENT

BETWEEN :

The Government of the Province of Petchili (hereinafter called "The Provincial Government"), represented by H. E. Shen-Ki-Sou-Ling, Chinese Minister in Vienna, of the one part and

The *Banque de Reports, de Fonds Publics & de Dépôts*, Société anonyme, established in Antwerp, of the other part :

WHEREAS the Provincial Government has been authorized by the Central Government of the Republic of China (hereinafter called "the Central Government") to issue a Loan of £ 500,000 (five hundred thousand pounds sterling) ;

AND WHEREAS a copy of this authorisation in English (duly legalized by the Consul General of China in London) has been handed over to the Bank by the Chinese Legation in Vienna at the time of the signinging of the present Agreement;

AND WHEREAS the Provincial Government has authorized H. E. the Chinese Minister in Vienna, to contract the said Loan in the name and for account of the said Provincial Government ;

NOW THEREFORE it is hereby agreed as followlows :

Article 1. — By virtue of this Agreement the Provincial Government authorizes the Bank to issue a Loan of the Province of Petchili of a total nominal amount of £ 500,000.— (five hundred thousand pounds sterling) in Gold Bonds to bearer carrying interest, as from 1st February 1913, at the rate of 5 1/2 o/o per annum, on the total nominal amount, such interest being payablein in equal instalments every six months.

Art. 2. — The redemption of the said Gold Bonds will take place on or before 1st February 1953 by means of an annual sinking reserve fund, created by the payment to the Bank of £ 7,500.— (seven thousand five hundred pounds sterling) in the year 1924 and of a like amount in each following year.

This reserve fund will be made use of from the 1st February 1925 as hereinafter mentioned under art. 17.

Art. 4. — The interest will be paid half-yearly at the Head Office of the Bank, or at any other places specified by the Bank, on surrender of the appropriate coupons.

Art. 7. — The General Bond guaranteeing the present Loan, as well as the provisional certificates, Bonds and coupons, will be made up in such manner as may be approved of by the Provincial Government and by the Bank, and will bear the signature and official Seal of H. E. the Chinenese Minister in Vienna, acting as authorized representative of the Central and of the Provincial Governments.

Art. 9. — In the event of any Bonds or coupupons becoming lost, damaged or destroyed through any cause whatsoever, the Provincial Government binds itself, upon receiving sufficient proofs to that effect and upon payment of expenses incurred, to deliver to the claimant new Bonds or new coupons as the case may be.

Art. 10. — All drawn Bonds, not presentented for payment within 15 years reckoned from the date of their maturity, will be repaid only on surrender of such Bonds to the Provincial Government in Tien-Tsin.

The amounts of any coupons which have become due but which have not been claimed for a period of at least 5 years, as also of any Bonds drawn for payment but not claimed within a period of 30 years shall be definitely forfeited in favour of the Provincial Government.

Art. 11. — The Provincial Government reserves to itself the right, upon giving 6 months notice, to repay at any time after the year 1924, the whole or any part of the said Loan, at par, provided that the aforementioned 6 months' notice be published in a Belgian, English and French paper.

Such repayments will have to be met on the due date of the payment of coupons, either by direct payment to the bearers, or, in case of part repayment, by an increase of the reserve Fund.

Art. 16. — The Provincial Government has obtained as an additional guarantee that the Central Government binds itself formally by and unreservedly to fully and punctually pay the principal and interest of the said Loan, which guarantee will be duly recorded and countersigned on the Bonds by the representative of the Central Government thereto duly authorized.

Art. 17. — The redemption Fund will be used during the year 1925 and all following years to repay the Loan, according to the amortization Table, annexed to the present Agreement, in manner following :

1° In the event of the Bonds being quoted below par, the Bank will purchase them in the market or by tender, for account of the Provincial Government, after having, in that case, consulted the representative of the Chinese Government in Brussels to this effect;

2° In the event of the Bonds being quoted at or above par, they will be repaid by annual drawings at their nominal value.

In the latter case, the drawings will take place every year at either Brussels or Antwerp, as the Bank may deem fit, on the 1st date mentioned hereafter in the presence of representatives of the Bank and of the Chinenese Government, should the latter wish it.

The numbers of drawn Bonds, as also the numbers of any Bond purchased for the purpose of cancellation will together with a copy of the report of the drawing be published without delay in a Belgian, Englisgish and French newspaper and, eventually, also in newspapers of other countries to be designated by the Bank.

The amount of the drawn Bonds will be paid on the 1st February following the date of the drawing, in £ sterling or in Francs, Marks, etc., at the rate of the sterling exchange on London, on the date such payments are due.

The drawings will take place on the 2nd January in each year.

The interest on the drawn Bonds will cease to run from the date on which the Bonds are to be redeemed.

The numbers of all the Bonds drawn but not presented for payment will be published after the year 1926 annually in the above-mentioned papers.

All Bonds presented for payment must have intact all the coupons not yet due; the amount due for any missing coupon will be deducted from the sum which has to be repaid.

Art. 22. — On the signing of the present Agreement the Bank shall receive the General Bond, duly signed by the authorized representative of both the Central and the Provincial Governments together with all vouchers and documents duly in order, for the total nominal amount of the Loan, with the half-yearly coupon, due 1st August 1913, attached.

AMORTIZATION TABLE

Date of Drawing	Amount of Loan in circulation	Interest	Amounts repaid
2nd January 1925	£ 500,000. 0. 0	£ 27,500. 0. 0	£ 7,500. 0. 0
" 1926	492,500. 0. 0	27,087.10. 0	7,912.10. 0
" 1927	484,587.10. 0	26,652. 6. 3	8,347.13. 9
" 1928	476,239.16. 3	26,193. 3. 9	8,806.16. 3
" 1929	467,433. 0. 0	25,708.16. 4	9,291. 3. 8
" 1930	458,141.16. 4	25,197.16. 0	9,802. 4. 0
" 1931	448,339.12. 4	24,658.13. 7	10,341. 6. 5
" 1932	437,998. 5.11	24,089.18. 2	10,910. 1. 10
" 1933	427,088. 4. 1	23,489.17. 1	11,510. 3. 0
" 1934	415,578. 1. 1	22,856.15.10	12,143. 4. 2
" 1935	403,434.16.11	22,188.18. 4	12,811. 1. 8
" 1936	390,623.15. 3	21,454. 6. 2	13,545.13.10
" 1937	377,108. 1. 5	20,749.18.10	14,250. 1. 2
" 1938	362,849. 0. 3	19,956.14.11	16,043. 6. 1
" 1939	347,805.14. 2	19,129. 6. 3	15,870.13. 9
" 1940	331,935. 0. 5	18,256. 8. 6	16,743.11. 6
" 1941	315,191. 8.11	17,335.10. 7	17,664. 9. 5
" 1942	297,526.19. 6	16,363.19. 8	18,636. 0. 4
" 1943	278,890.19. 2	15,339. 0. 1	19,660.19.11
" 1944	259,299.19. 3	14,257.13. 0	20,742. 7. 0
" 1945	238,487.12. 3	13,116.16. 4	21,883. 3. 8
" 1946	216,604. 8. 7	11,913. 4.10	23,086.15. 2
" 1947	193,517.13. 5	10,643. 5. 5	24,356.10. 7
" 1948	169,161. 2.10	9,303.17. 3	25,696. 2. 9
" 1949	143,465. 0. 1	7,890.11. 6	27,109. 8. 6
" 1950	116,355.11. 7	6,399.11. 2	28,600. 8.10
" 1951	87,755. 2. 9	4,826.10. 8	30,173. 9. 4
" 1952	57,581.13. 5	3,166.19.10	31,833. 0. 2
" 1953	25,748.13. 3	1,416. 3. 7	25,748.13. 5
			£ 500,000. 0. 0

Petchili province issued £500,000 of these bonds in 1913 to finance railway and port improvements, and pay railroad debts. They issued 25,000 £20 bearer bonds at 5.5% payable in gold. Two coupons a year in February and August each paid eleven shillings. They reserved the right to repay the bonds between 1925 and 1953. Petchili was also called Chihli and renamed Hebei in 1928, in northeastern China.

The ROC ruled from 1912 to 1949. The communist Mao Zedong then established the People's Republic of China (PRC), and drove out Chiang Kai-shek's Nationalist ROC to Taiwan. Now the PRC is China, and the ROC is Taiwan.

In January 1913, the ROC had agreed to the bond. They said, "*By guaranteeing absolutely and unconditionally the punctual payment of principal and interest of the present loan."*

They floated these bonds in Brussels and Antwerp. Taxes collected by Petchili Province on wine and tobacco paid a mortgage to secure the bonds. The back of the bond lists the mortgage amortization.

The last interest payment coupon clipped was 1925. This is the same as other identical bonds. As you can see, the bond is uncanceled and has coupons. This suggests that in 1925, the ROC stopped paying interest. Perhaps the Nationalist leader Chiang Kai-shek's death that year led to political uncertainty. However, in 1938, they repudiated the debt, saying they did not recognize it.

To this day, the PRC repudiates all ROC debts, totaling around $1 trillion, adjusting for inflation, interest, and damages.

During the 2016 Trump administration, officials looked into the possibility of claiming these debts, but concluded any resolution unlikely. But there was a lot of hype that owning these bonds might yield a bonanza!

Romantically, dealers pointed to the sampans on the river with hills in the background, with the hand-written signature of the Chinese Minister in Vienna! In 2016, internet dealers started advertising a "Chinese Bond Redemption Program," quoting billions of dollars. None of this came to fruition!

This addressed a long-lived dream that buying old stocks and bonds may turn up something companies or countries might redeem! If the PRC ever honored its debts, this would be very valuable! Dealers asked $500 to $5,000 for them. One huckster even advertised them as worth $5.25 billion on Facebook in 2016! However, a £20 bond compounded yearly at 5.5% would yield only $10,000 in 2024.

I show items on the bond below, with the amortization table listed bottom left. When they issued the bond at 5.5% not 4%, that should have rung an alarm bell — political instability! Although they paid 1.5% extra for 12 years, they lost their capital.

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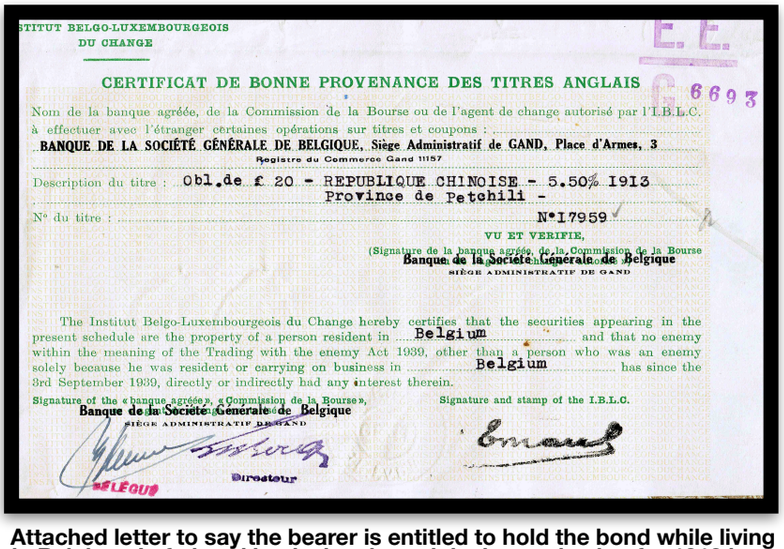


INSTITUT BELGO-LUXEMBOURGEOIS DU CHANGE

CERTIFICAT DE BONNE PROVENANCE DES TITRES ANGLAIS

6693

Nom de la banque agréée, de la Commission de la Bourse ou de l'agent de change autorisé par l'I.B.L.C. à effectuer avec l'étranger certaines opérations sur titres et coupons :
BANQUE DE LA SOCIÉTÉ GÉNÉRALE DE BELGIQUE, Siège Administratif de GAND, Place d'Armes, 3
Registre du Commerce Gand 11157

Description du titre : Obl.de £ 20 - REPUBLIQUE CHINOISE - 5.50% 1913
Province de Petchili -

N° du titre : N°17959

VU ET VERIFIE,
(Signature de la banque agréée, de la Commission de la Bourse ou de l'agent de change)
Banque de la Société Générale de Belgique
SIÈGE ADMINISTRATIF DE GAND

The Institut Belgo-Luxembourgeois du Change hereby certifies that the securities appearing in the present schedule are the property of a person resident in Belgium and that no enemy within the meaning of the Trading with the enemy Act 1939, other than a person who was an enemy solely because he was resident or carrying on business in Belgium has since the 3rd September 1939, directly or indirectly had any interest therein.

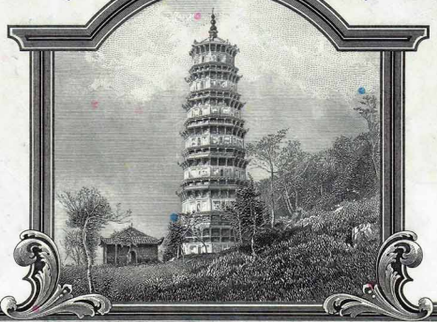
Signature of the «banque agréée», «Commission de la Bourse», «agent de change»
Banque de la Société Générale de Belgique
SIÈGE ADMINISTRATIF DE GAND

Signature and stamp of the I.B.L.C.

Directeur

Attached letter to say the bearer is entitled to hold the bond while living in Belgium. Left: bond back showing original amortization for 1913 loan

No. M3790



No. M3790

$1000

$1000

REPUBLIC OF CHINA

Secured Sinking Fund Bonds of 1937

For value received the Government of the Republic of China (hereinafter sometimes referred to as "the Chinese Government") promises to pay to bearer on July 1, 1971, at the office of J. P. Morgan & Co., in the Borough of Manhattan, The City of New York, United States of America, the principal sum of

ONE THOUSAND DOLLARS ($1,000)

in money of the United States of America which is legal tender for the payment of public and private debts, and to pay interest thereon at said office from and after July 1, 1937, in like money at the rate of two per cent per annum to and including July 1, 1938, at the rate of two and one-half per cent per annum from July 1, 1938 to and including July 1, 1939, at the rate of three per cent per annum from July 1, 1939 to and including July 1, 1940, at the rate of three and one-half per cent per annum from July 1, 1940 to and including July 1, 1941, and thereafter at the rate of four per cent per annum until such principal sum shall be paid. The Chinese Government hereby pledges its good faith and credit for the full and punctual payment of the principal sum and interest of this bond, in accordance with its terms, and for the performance of all of the undertakings on the part of the Chinese Government herein agreed to. Such interest will be paid semi-annually on the first day of January and the first day of July in each year. Such principal sum and such interest will be paid only upon presentation and surrender, respectively, of this bond and of the annexed interest coupons as they severally become due and payable.

THE PERIOD WITHIN WHICH THE PRINCIPAL SUM OF THIS BOND IS PAYABLE IS LIMITED TO SIX YEARS FROM THE DATE WHEN IT SHALL BECOME PAYABLE AFTER HAVING BEEN DRAWN AND AFTER PROVISION FOR PAYMENT THEREOF HAS BEEN DULY MADE. THE PERIOD WITHIN WHICH MATURED INTEREST COUPONS ARE PAYABLE IS ALSO LIMITED TO SIX YEARS FROM THEIR RESPECTIVE DATES OF MATURITY AND AFTER PROVISION FOR PAYMENT THEREOF HAS BEEN DULY MADE.

Both the principal of and interest on this bond will be paid in time of war as well as in time of peace, and whether the holder thereof is a citizen of a friendly or hostile nation, without any deduction whatever for any taxes, impositions, liens or charges of any and every kind now or hereafter established or levied by the Chinese Government or any province, division or branch thereof, or by any other political or taxing power, province, division or branch thereof, against this bond or the principal thereof or interest to become arising therefrom, or the holder thereof or respect thereto. The Chinese Government covenants and agrees that as and for a sinking fund, it will, on the first day of July in each year, beginning with the year 1942, redeem and pay, at par and accrued interest, bonds of this issue equal in principal amount to the percentage listed below of the total principal amount of bonds of this issue originally issued by the Chinese Government.

ON JULY 1, 1942 5%	ON JULY 1, 1946 7%	ON JULY 1, 1950 9%
ON JULY 1, 1943 5%	ON JULY 1, 1947 7%	ON JULY 1, 1951 9%
ON JULY 1, 1944 6%	ON JULY 1, 1948 8%	ON JULY 1, 1952 10%
ON JULY 1, 1945 6%	ON JULY 1, 1949 8%	ON JULY 1, 1953 10%

ON JULY 1, 1954 10% [OR THE TOTAL AMOUNT OF BONDS NOT THERETOFORE REDEEMED AND PAID].

The amount of bonds to be redeemed and paid at par and accrued interest on any of the above listed dates (hereinafter referred to as "redemption dates") may be increased by the Chinese Government, on giving written notice of its election so to do to J. P. Morgan & Co. prior to the first day of November next preceding such redemption date. The bonds to be redeemed and paid on each redemption date shall be determined by drawing by lot to be conducted by J. P. Morgan & Co. in such manner as may be determined by them in the month of December next preceding each such redemption date. If in the case of any such drawing the above listed percentage of bonds to be redeemed and paid shall produce a figure which is not a multiple of one hundred, the amount of bonds to be drawn at such time and to be redeemed and paid on the next following redemption date shall be fixed at the nearest multiple of one hundred. In any event, and notwithstanding any other provisions of this bond, the amount of bonds to be redeemed and paid on July 1, 1953 shall be the total amount of bonds not theretofore redeemed and paid. Prior to each redemption date the Chinese Government shall publish, or cause to be published in its name, a notice containing the numbers of the bonds drawn in the preceding December and stating that such bonds will be redeemed and paid at par and accrued interest on the next following first day of July at the office of J. P. Morgan & Co., in the Borough of Manhattan, The City of New York, United States of America. Such notice shall be published at least twice in a newspaper of general circulation published in the English language in The City of New York, the first of such publications to be as soon as practicable after the drawing has been held and the second publication to be not more than thirty days prior to the redemption date. Similar notice shall also be published in China. Drawn bonds presented for redemption must be accompanied by all unmatured coupons. Interest on the principal amount of this bond will cease on the date fixed for the redemption thereof, provided that the Chinese Government shall have deposited with J. P. Morgan & Co. the funds necessary to redeem and pay the principal amount of and interest on this bond and of all other bonds to be redeemed and paid on that date. At least ten days before any payment of principal of or interest on this bond shall become due the Chinese Government will deposit with J. P. Morgan & Co. a sum sufficient to make such payment. This bond is one of an authorized issue of Secured Sinking Fund Bonds of 1937 of the Republic of China of the aggregate principal sum of Four Million Nine Hundred Thousand Dollars ($4,900,000). All of the bonds of this issue are of like tenor, except as to amount, and rank pari passu without preference or priority of one over the other. All such bonds are entitled equally, pro rata, to the benefit of the security hereinafter described. This bond is secured in respect to both principal and interest by a direct charge upon, and is entitled to a lien on, the entire salt revenues derived and to be derived by the Chinese Government, subject only to charges and liens existing on such revenues as of May 4th, 1937. This bond, and the other bonds of this issue, shall have priority, both as regards principal and interest, over any future loan, pledge, lien, charge, or mortgage whatsoever which may hereafter be charged upon the said salt revenue. Any future loan, pledge, lien, charge or mortgage whatsoever hereafter charged on said salt revenues or any part thereof, shall be expressly subject to the charge and lien of this bond, and the other bonds of this issue, both as to principal and interest. The Chinese Government covenants and agrees that it will apply toward the payment of the principal and interest of this bond, and of the other bonds of this issue, so much of the pledged revenues as will be adequate and sufficient fully to pay said bonds and all accrued and accruing interest thereon. The Chinese Government further covenants and agrees that, if, during the time that this bond, or any other bond of this issue, is unpaid as to principal or interest, the receipts from the pledged revenues available for the service of this bond, and the other bonds of this issue, shall for any reason or circumstance whatever be insufficient for the above recited purpose, the Chinese Government will forthwith make good any such deficiency from its other sources of revenue, the good faith and credit of the Chinese Government being pledged for the full and punctual payment of the principal sum and interest of this bond. If this bond or any coupon or coupons hereto annexed should be destroyed, or be so mutilated as to become non-negotiable, the Chinese Government will, at the expense of the owner or owners thereof, execute and deliver to such owner or owners, a duplicate bond or coupon or coupons, but only upon receiving proof satisfactory to it of such destruction or mutilation, and upon receiving indemnity satisfactory to it. This bond shall not be valid unless it shall have been duly authenticated by the countersignature of Bank of China, New York Agency. The Chinese Government hereby certifies and declares that the execution and delivery of this bond has been duly authorized by the Chinese Government and is issued in strict compliance and accordance with the constitution and laws of the Republic of China. The coupons hereto annexed shall be executed by the engraved facsimile signature of the Chinese Ambassador at Washington, D.C. or by the engraved facsimile signature of the Counsellor of the Chinese Embassy at Washington, D.C.

In Witness Whereof, the Government of the Republic of China has caused this bond to be signed by its duly authorized representative, the Chinese Ambassador at Washington, D.C. or the Counsellor of the Chinese Embassy at Washington, D.C. and has caused the seal of its said Embassy to be affixed hereto, as of July 1, 1937, and this bond has been authenticated by the countersignature of Bank of China, New York Agency.

THE GOVERNMENT OF THE REPUBLIC OF CHINA

By _____

COUNSELLOR OF THE CHINESE EMBASSY AT WASHINGTON, D.C.

AMERICAN BANK NOTE COMPANY.

Republic of China Pagoda bond, 1937 #2312

The JP Morgan Company issued these bonds to redeem a Chinese three-year loan of 1919. Better late than never! Above you can see an attached "bluebird" to certify the holder was a US citizen. They issued the bonds in 1937.

Historical Context

In 1899-1901, a conservative anti-imperialist movement called the Boxers rebelled against eight foreign missions trying to control China. The Eight Nation Alliance defeated the Boxers and demanded 800 million ounces of silver in reparations!

In 1911, the Xinhai Revolution led to the overthrow of China's "Last Emperor," Puyi, and established the Republic of China (ROC) (1912-1949), with Sun Yet-sen as its first president. He ascribed the overthrow to Christian ideals taught by foreign missions. This upheaval sparked European interest in gaining a financial foothold in the new Republic.

Yuan Shikai soon ousted Sun Yat-sen as president, but died in 1916, leaving China under warlord control.

In the 1920s, Sun Yat-sen's Nationalist Party controlled South and Central China and frequently clashed with communists. After Sun Yat-sen's death in 1925, Chiang Kai-shek took over, leading the Nationalists against Mao Zedong's communists, who eventually drove them out of China to Taiwan. The communist People's Republic of China (PRC) ruled China since 1949. The fleeing Republic of China (ROC) became Taiwan.

In 1931, Japanese soldiers staged an incident. They set off a bomb on the Manchurian railroad to claim self defense against China, called the Mukden Incident. The next year, they set up a puppet state called Manchukuo, installing the last Emperor of China, Puyi, in Manchuria. China appealed to the League of Nations, who chastised Japan. Japan simply withdrew from the League of Nations and continued occupying northern China.

Puyi with wife Wanrong, leaving hotel to travel to Manchukuo founding ceremony

Chiang Kai-shek's Nationalists did little to resist Japan until 1936, when they united with Mao Zedong's Communists to oppose her.

In July 1937, the Second Sino-Japanese War started somewhat comically. The Japanese conducted nighttime training 10 miles from Beijing. But one Japanese private took an unscheduled bathroom break and lost his way in the dark. When he did not return to base, the Chinese refused to let Japanese troops enter a local town to search for him. A standoff broke into a violent war — just what the Japanese had been waiting for!

This 1937 Second Sino-Japanese War also spelt the beginning of the Second World War for China.

Because of this, some historians (especially Chinese) list the Second World War as starting in 1937. That year, Japan launched a full-scale invasion, seizing Beijing and then Shanghai. In December came the Rape of Nanking, when the Japanese massacred 200,000-300,000 soldiers and raped tens of thousands of Chinese women.

The 1937 Pagoda Bond

Because of this, it is a wonder that China paid the coupons of January and July 1938, and January 1939. The bond's owner clipped only these three coupons like other examples I have seen. Presumably, the ROC repudiated this debt. Interestingly, PRC reneged on the ROC's debt, claiming they were different, but now claims to own Taiwan (the ROC)!

The bond sports a Pagoda, symbolizing China. It certainly makes for an attractive bond, but it did not live up to its financial attraction! They came in different color borders depending on the currency and bond denomination. They issued $5, $10, $50, $100, and $1,000 denominations. In 2018, Archives International Auctions sold a $100 bond like this for $6,000! One presumes the buyer was following the news about possible PRC repayment!

Some claim the ROC issued these to raise funds during the Second Sino-Japanese War. But it would have taken months for the American Bank Note Company to print them, and for JP Morgan to organize them. It is unlikely they could have issued the bond the very same month the war broke out.

Modern times make it simple to invest in foreign securities with ETFs to minimize risk. But foreign investing back then meant accepting currency exchange differences, differing inflation, differing investment climates, and the risk of war. How many today would invest in Russia, China, North Korea, Iran, Lebanon, or Argentina?

The world today is an unpredictable place, with so many Machiavellian characters. Yet investors today have a clearer picture of risk. But do they properly take account of risk? How many investors think of ways to reduce geo-political risk? The person who invested in this bond spent $1,000 and only got back $37.50! US GDP per capita was then $721, so this was like a year's salary down the drain.

Legal doctrines to reclaim debt

In 1979, holders of Qing (Manchu) Dynasty Hukuang Railway bonds tried suing the PRC. The PRC dismissed the suit because of the US Foreign Sovereign Immunity Act. The act says foreign states are immune from US court jurisdiction.

Another international doctrine is called the Odious Debt Doctrine. Under this, PRC could claim the debt from an illegitimate regime was unenforceable, or that they incurred the debts under duress or unfavorable conditions.

The 2016 Trump administration tried regaining trillions in unpaid ROC bonds, but was unsuccessful. The Lewisburg, an American Bondholder Foundation, still holds $1.6 trillion of century-old ROC debt, including interest. Worldwide, there are about $6 trillion of unpaid bonds. To be fair, the US also declared all Confederate debts void with the 14th Amendment.

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UNITED STATES OF AMERICA

$1000

$1000

No. 00000

No. 00000

STATE OF NEW JERSEY

OTIS ELEVATOR COMPANY

Convertible Five Per Cent. Gold Debenture Bond.

Otis Elevator Company, a corporation duly organized and existing under and by virtue of the laws of the State of New Jersey (hereinafter called the "Company"), for value received, hereby promises to pay to The New York Trust Company as Trustee for the benefit of the holder hereof, on the first day of April, 1920, the sum of One Thousand Dollars ($1000) in gold coin of the United States of America of or equivalent to the present standard of weight and fineness, and to pay interest thereon from April 1, 1910, at the rate of five per centum (5%) per annum, payable in like gold coin semi-annually on the first days of April and October in each and every year, upon surrender and cancellation of the respective coupons for said interest hereto annexed, both principal and interest being payable in the City of New York at the office of The New York Trust Company, Trustee, or its successor in the trust, without deduction for any tax or taxes which the Company may be required to pay thereon or to retain therefrom under any present or future law of the United States of America, or of any state, territory, county, municipality, or other taxing authority therein or elsewhere. This Debenture is one of an issue of convertible five per cent (5%) gold Debenture Bonds of the Company of like tenor, date and amount, not exceeding in the aggregate the sum of Three million five hundred thousand dollars ($3,500,000) and numbered consecutively from one (1) to three thousand five hundred (3,500), both inclusive, said Debentures to be issued, received and held subject to all and singular the terms, conditions and provisions contained in the certain agreement dated April 1, 1910, executed and delivered by and between the Otis Elevator Company and The New York Trust Company as Trustee, to which agreement reference is hereby made for a statement of the nature and extent of the rights of the holders of said Debentures. All rights of action upon this Debenture and the coupons hereto attached, except as otherwise provided by said agreement, are vested in the Trustee. If default shall be made in the payment of interest upon any of said Debentures, when the same shall become due and be demanded, and said default shall continue for a period of thirty (30) days after such demand, or if default shall otherwise be made and continued as specified in said agreement, the principal of this Debenture may become immediately due and payable, in the manner, and as provided for, and with the effect specified in said agreement. This Debenture and all the rights and benefits hereunder shall pass by delivery, unless registered as provided on the back hereof. This Debenture is subject to redemption at the election of the Company, exercised as provided in said agreement, on the first day of April, 1913, or on any interest payment date thereafter, at one hundred and two and one half per centum (102½%) of the principal amount thereof, and accrued interest to date of redemption, and may be converted at the option of the holder or registered owner, at any time on or after the first day of April, 1913, into One thousand dollars ($1000) par value of the full paid common capital stock of the Company, as the capital stock of the Company shall be constituted at the time of conversion. This Debenture is a corporate obligation only, and, as provided in the agreement under which this Debenture is issued, no recourse whatsoever, either directly or through any receiver or assignee, shall be had against any Incorporator or any present or future Stockholder, Director or Officer of the Company, for the payment of the principal and interest hereof. This Debenture shall not become obligatory for any purpose until the Certificate endorsed hereon is signed by the Trustee or its successor in the trust, and such Certificate shall be conclusive proof that this Debenture is one of the Debentures issued under said Agreement and constitutes a valid, legal and binding obligation of the Company.

In Witness Whereof, the Otis Elevator Company has caused this Debenture to be executed in its corporate name by its President or one of its Vice-Presidents, and its corporate seal to be hereunto affixed and attested by its Secretary or one of its Assistant Secretaries, and the annexed Interest Coupons, bearing the engraved fac-simile of the signature of its Treasurer, to be attached hereto.

Dated April 1, 1910.

Otis Elevator Company,

By

ATTEST:

SPECIMEN

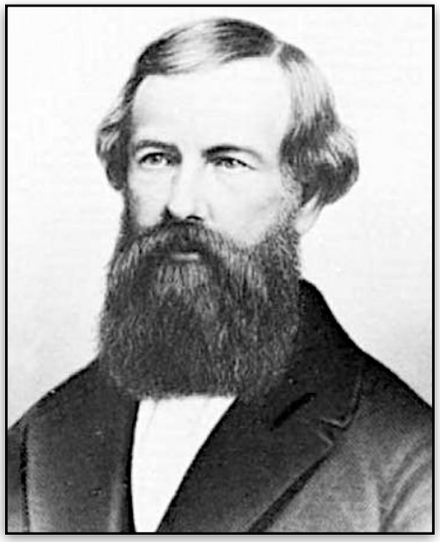
SECRETARY.

SPECIMEN

PRESIDENT.

AMERICAN BANK NOTE COMPANY, NEW YORK.

Otis Elevators: the beginning of sky scrapers #1987



Elisha Otis 1811-1861

The Otis bond
Opposite is a specimen $1,000 convertible proof 5% gold bond. In the vignette, the lady on the left is an allegory of mechanical engineering; the man at right is an allegory of heavy industry holding a cogwheel. Above is a lady with strap-on wings, ready to fly up to whatever story she needs! She holds a torch, representing progress and advancement, lighting the way upwards!

History of Elisha Otis
Without Otis, we would not have modern cities with skyscrapers! Elisha Otis (1811-1861) invented a safety device to stop elevators from falling in 1853.

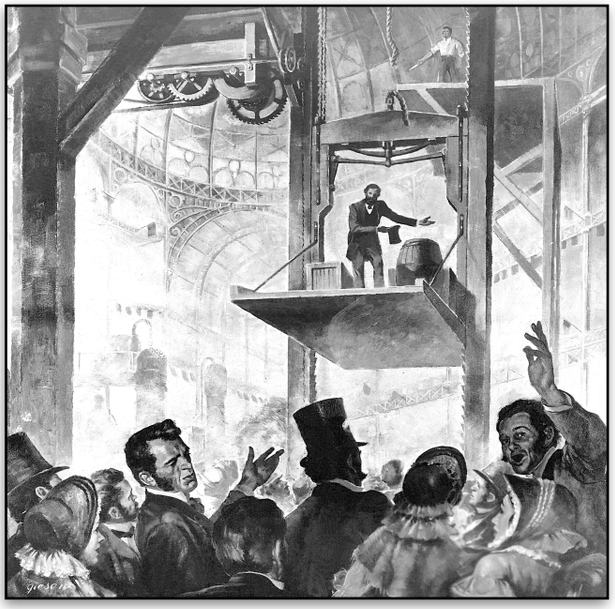
Born in Vermont, he moved to upstate New York, married, then moved back to Vermont, where he designed and built his own gristmill. It did not support him, so he turned it into a sawmill, which was unsuccessful, so he built carriages instead. After his wife died, he moved with his two sons back to upstate New York. There, he worked installing machines in a bedstead factory, where he invented his clever safety device on a factory hoist.

In 1853, he founded the Otis Elevator Company. The same year, he demonstrated his invention at the Crystal Palace at the "Exhibition of the Industry of All Nations" in New York City (see below).

In 1857, he installed the first elevator in a five-story building in New York City. This made sky scrapers practicable, allowing cities to develop vertically not horizontally.

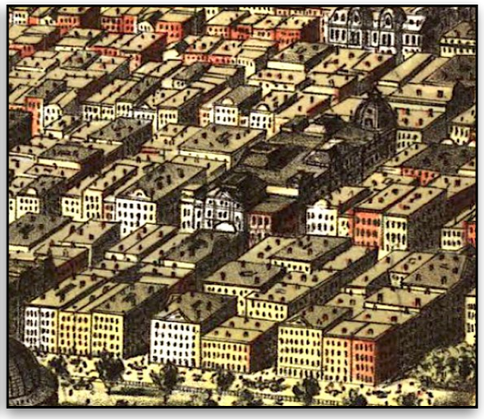
You can see how it worked in his demonstration. The suspending cable kept a large leaf spring above flat, which kept the side hooks away from the ratchet. As soon as the cable lost its tension, the leaf spring pushed down. This flipped the levered side hooks outward to engage on the ratchet mechanism throughout the elevator shaft.

Unfortunately, four years after the first elevator got installed, Elisha got diphtheria and died. His two sons, Charles and Norton, took over running the company.



Otis demonstrating his safety elevator at the Crystal Palace

During the Civil War (1861-5), factories used his elevators extensively. Then in 1867, the company opened a factory in Yonkers, New York. Charles resigned in 1890. In 1898, William Baldwin became company president, and the company went public. Norton Otis continued as chairman until 1905.



Left: Home insurance building Chicago 1885
Above: Chicago, 1874, no building over 5 stories

Otis Elevator today
The company is now called Otis Worldwide, based in Farmington, CT. They make elevators, moving sidewalks, and escalators. United Technology bought them out in 1976, then spun them off again as an independent company in 2018.

Before elevators, buildings seldom rose much over six stories, except for church steeples, clock towers, etc. People did not want to climb over four or five sets of stairs. Architects also realized the structural limitations of load-bearing walls and needing to pump water to upper floors. Brick does not function as a load bearer above five or six stories.

The safety elevator was what made sky scrapers practicable, allowing cities to develop vertically rather than horizontally. Once the safety elevator appeared, architects moved to steel-framed construction with thinner walls rather than masonry. These new buildings needed special fireproofing and wind bracing. Also, the foundations had to be deeper and often down to bedrock. Most of the early skyscrapers shot up in New York City and Chicago. The first was this ten-story Home Insurance Building in Chicago in 1885.

Crystal Palace at The Exhibition of Industry of All Nations in New York City in 1853

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UNITED STATES OF AMERICA

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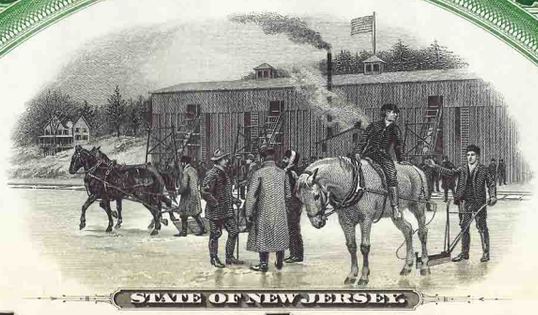

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STATE OF NEW JERSEY

NEW ENGLAND CONSOLIDATED ICE COMPANIES

No. 00000

No. 00000

FIRST AND COLLATERAL TRUST SINKING FUND MORTGAGE THIRTY YEAR FIVE PER CENT. GOLD COUPON BOND.

New England Consolidated Ice Companies, a corporation duly incorporated and existing under the laws of the State of New Jersey, hereinafter called New England Company, for value received, hereby promises to pay to the bearer or, if this bond shall be registered as hereinafter provided and prescribed, to the registered holder of this bond on the first day of July in the year one thousand nine hundred and thirty two, at the office or agency of the New England Company in the city of New York, State of New York, or at the office or agency of the New England Company in the city of Boston, Commonwealth of Massachusetts, **One Thousand Dollars** in gold coin of the United States of America of or equal to the present standard of weight and fineness and to pay interest thereon during the term of this bond from the first day of July, 1902, at the rate of Five per cent. (5%) per annum, payable at either of such offices or agencies in like gold coin semi-annually on the first day of January and the first day of July in each year during such term, but only upon presentation and surrender, as they severally mature, of the respective coupons for such interest hereto attached. Both the principal and interest of this bond are payable without deduction for any tax or taxes which the New England Company or its successors or assigns may be required to pay upon, or to deduct or retain from such principal or interest under any present or future law of the United States of America or of any State, county or municipality therein. This bond is one of a duly authorized issue of three thousand coupon bonds of the New England Company known as its First and Collateral Trust Sinking Fund Mortgage Thirty Year Five Per Cent. Gold Coupon Bonds, all of like tenor and date issued or to be issued to any amount limited so that never at any one time shall there be outstanding bonds of said issue of which this bond is one to an amount exceeding in the

NUMBER M000

STATE OF DELAWARE

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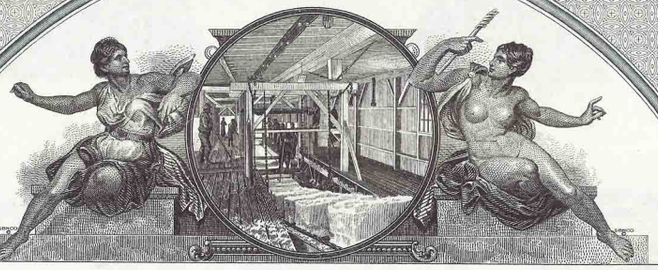

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SOUTHERN NEW ENGLAND ICE CO., INC.

FIRST MORTGAGE 4½% SINKING FUND BOND

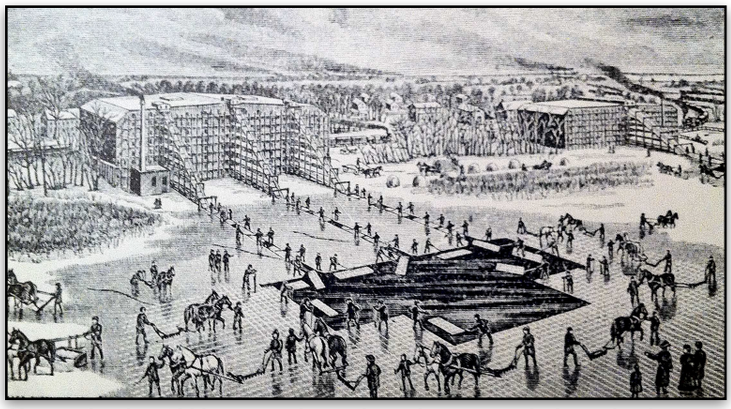
Southern New England Ice Co., Inc., a corporation of the State of Delaware (hereinafter termed the "Company") for value received, hereby promises to pay to the bearer, or, if this bond be registered, to the registered holder hereof, on the 1st day of April, 1967 (unless this bond shall have been called for previous redemption and payment thereof provided),

ONE THOUSAND DOLLARS

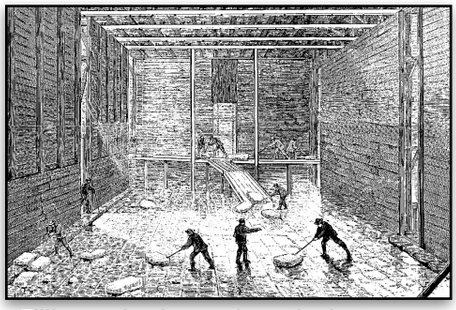
lawful money of the United States of America, and to pay interest on said principal amount at the rate of 4½% per annum from April 1st, 1937 in like lawful money, semi-annually on the first day of April and the first day of October in each year, but only upon presentation and surrender of the coupons therefor hereto annexed as they severally mature. Payment of the principal of and the interest on this bond will be made at the office or agency of the Company in the City of Hartford, Connecticut.

This bond is one of a duly authorized issue of bonds of this Company, all known as its First Mortgage 4½% Sinking Fund Bonds, and all issued or to be issued under and equally secured by a mortgage (herein termed "Indenture") dated as of the first day of August, 1936, executed by the Company to Hartford National

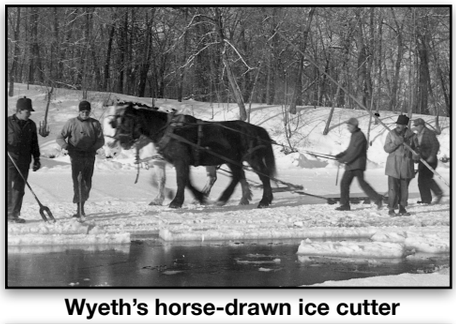
The Ice Trade: Keeping cool before refrigeration #1992, #1993



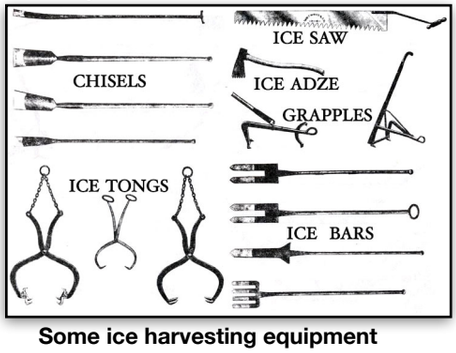
Harvesting ice 1889, water channels and conveyor belts to ice houses



Filling an ice house from the bottom up



Wyeth's horse-drawn ice cutter



Some ice harvesting equipment

For centuries, farmers in cool climates harvested pond ice and stored it in cellars to keep food cool in the summer. From the 1500s on, wealthy Europeans built their own ice houses to cool summer food and drinks.

Frederic Tudor

Frederic Tudor (1783-1864) founded the first commercial US ice company. Aged 25 in 1806, he cut ice from his father's farm and, using his own brig, transported it to Cuba.

But his first agent double crossed him and he ended up in debtor's prison. Once out, he built an ice house in Cuba and tried again. His first Havana ice house was double shelled wood, insulated with 6 feet of sawdust and peat. Internal dimensions were 25 feet square and 16 feet high, holding 150 tons of ice. But it was a fire risk. He also sold ice in Charleston, Savannah, and New Orleans.

Early on, people thought underground ice houses were best, but Tudor later showed insulation, not ambient temperature, was the critical factor. They also needed proper water drainage as water melted ice quicker than air. Later, larger ice houses proved more efficient.

By the mid 1820s, Tudor shipped 2,000 tons of ice a year from Boston — twice that of all his competitors combined. He partnered with Nathaniel Wyeth (1802-1856), an inventor who developed a lot of the technology for efficient ice harvesting and storage. Nathaniel invented a new, more efficient horse-drawn ice cutter in 1825, reducing the cost of harvesting by 70%. He also managed harvesting from Fresh Pond, a family owned 155 acre pond 20 miles west of Boston harbor.

In 1833, Tudor partnered with another Boston merchant, Samuel Austin, to cultivate the India ice trade. They sailed to Calcutta with 180 tons of ice, arriving with 100 tons still unmelted. They built ice houses in Calcutta, Bombay, and Madras. Tudor wanted monopolies, so sold at a loss to undercut competitors until they went under, then raised his prices — a common predatory practice at the time.

Ice harvesting

After harvesting, men pushed ice blocks along skids into adjustable openings in the icehouse. They covered the floor completely with ice bricks, then laid successive layers of ice bricks on top until the house was full (see pictures above). Higher layers required a hoist for each ice block, operated by a horse, or steam engine. Each ice house was gradually emptied over the summer, then filled again the next winter. Tudor had networks of ice houses next door to suppliers, and at each port.

During winter, once the ice was thick enough (judged with an augur), horses started work with spiked cleats on their hooves and bags to prevent soiling the ice.

To support the weight of workers and horses, ice had to be 18 inches thick before cutting. First, they cleaned the surface with scrapers, then scribed the surface for planned cutting.

Block size varied according to the destination. The smallest was 22 by 22 by 18 inches thick, yielding 5 cubic feet of ice weighing 280 pounds. Domestic suppliers had to subdivide them to 25, 50, and 100 pound blocks.

Next, horses pulled Wyeth's plow cutter multiple times across the ice to penetrate it. This replaced the previously slow ice saw. An acre of 18-inch-thick ice yielded 1,000 tons. They cut large sheets into smaller blocks then pushed them with ice hooks along water channels to the edge of the ponds where the ice houses stood (see top left).

By the 1830s and 1840s, Tudor had a lot of competition. By then, a worldwide network had developed. The ice trade revolutionized the US meat, fish, vegetable and fruit industries. Brewers could now brew lager beer year round (which needed cold atmospheres). Ice also made longer fishing voyages possible.

The ice trade spawned many other goods. Homes needed ice chests to stop the ice melting. Ice wagons regularly delivered blocks to customers. Lager beer increased in popularity. People in the US moved to chilled drinks containing ice (though not in the UK). Mint juleps needed crushed ice. In cities on the Eastern seaboard, ice cream increased in popularity, starting in the 1820s and 1830s. During the summer, fresh meat and fish rather than smoked or cured meats became more popular. Fresh fruits became more available.

By the 1850s, warehouses across the US stored around two million tons of ice. Around then, the US ice industry shifted to US markets rather than international trade.

From 1850 on, ice making plants also started producing ice, especially in hotter climates like New Orleans and India. At first, the plants were expensive and unreliable. The ammonia compression machines needed a lot of coal to run, cost a lot of money to buy, and often exploded. Sometimes ammonia leaked into the ice. Naturally harvested ice was cheaper. Plant ice did not compete until around 1880.

In the 1860s, ice-chilled rail cars transported meat from Chicago to the eastern seaboard. In the 1870s, they even transported US meat on ice to England. Ice wagons became a common sight in US cities in the summer. Some years, warm winters decreased supply, when harvesting expanded to Maine's Kennebec River, the Hudson River, and Wisconsin Lakes.

The Certificate

In the 1890s, consolidation started. Charles Morse, a Maine businessman, consolidated the New York City Ice Company and Consumers' Ice Company of New York into the Consolidated Ice Company shown opposite. On top, is a $1,000 5% 1902 gold bond. Below that is a 1937 Southern New England Ice Co. $1,000 4.5% 30-year bond. Morse later bought out the Knickerbocker Ice Company of New York, giving him control of around 4 million tons a year of ice. Vignettes show ice harvesting and storage.

Plant ice replaces harvested ice

By 1900, the industry employed 90,000 people and used 25,000 horses. Ice houses could now store up to 250,000 tons of ice. Norway and Switzerland soon replicated US ice harvesting techniques for European consumption.

From 1880 to 1914, plant ice gradually competed with harvested ice, overtaking them by 1914. That year, plant ice produced 26 million tons, while harvested ice totaled 24 million tons. Also, plant ice had now become safer to consume, with less risk of bacterial contamination.

As a child in Cyprus in the 1960s, I recall a local ice merchant. My parents used a small fridge, but when they had cocktail parties, they would have a block of ice delivered. They put this into a large zinc chest, into which they placed all the bottles of drinks.

References

https://en.wikipedia.org/wiki/Frederic_Tudor
https://en.wikipedia.org/wiki/Ice_trade#
https://en.wikipedia.org/wiki/Nathaniel_Jarvis_Wyeth

CERTIFICATE FOR LESS THAN 100 SHARES

NUMBER NC00000

SHARES

CERTIFICATE FOR LESS THAN 100 SHARES

INCORPORATED UNDER THE LAWS OF THE STATE OF DELAWARE

Carrier Corporation

This Certifies that _____ is the owner of _____

FULL PAID AND NON-ASSESSABLE SHARES, PAR VALUE $10 EACH, OF THE COMMON STOCK OF

Carrier Corporation (hereinafter called the "Corporation") transferable on the books of the Corporation by the holder hereof in person or by duly authorized attorney upon surrender of this certificate properly endorsed. A statement of the respective preferences, rights, voting powers, restrictions and qualifications of the several classes of stock of the Corporation is set forth upon the reverse hereof, and in the Certificate of Incorporation, as amended, and the holder hereof by accepting this certificate assents to and is bound by all the terms and provisions set forth in said statement and said Certificate of Incorporation. This certificate is not valid until countersigned by the Transfer Agent and registered by the Registrar.

Witness the facsimile seal of the Corporation and the facsimile signatures of its duly authorized officers.

Dated _____

REGISTERED The Chase National Bank OF THE CITY OF NEW YORK REGISTRAR — By _____ ASSISTANT CASHIER

SPECIMEN

COUNTERSIGNED Guaranty Trust Company of New York TRANSFER AGENT — By _____ AUTHORIZED OFFICER

SPECIMEN

CARRIER CORPORATION CORPORATE SEAL 1930 DELAWARE

SECRETARY/TREASURER

PRESIDENT

Tens	Units
1	1 2 3 4 5 6 7 8 9 0
2	1 2 3 4 5 6 7 8 9 0
3	1 2 3 4 5 6 7 8 9 0
4	1 2 3 4 5 6 7 8 9 0
5	1 2 3 4 5 6 7 8 9 0
6	1 2 3 4 5 6 7 8 9 0
7	1 2 3 4 5 6 7 8 9 0
8	1 2 3 4 5 6 7 8 9 0
9	1 2 3 4 5 6 7 8 9 0
0	1 2 3 4 5 6 7 8 9 0

E.A. WEIGHT BANK NOTE CO. PHILA.

SPECIMEN

40% OFF!

And still with all the quality, performance, and other benefits of Carrier's 36 Years Experience in 99 Countries, Devoted to Air Conditioning Exclusively.

Carrier Air Conditioning

1932 **A MILESTONE!** It's the first "packaged air conditioning"—the all-in-one cabinet air conditioner Carrier introduced six years ago. This Carrier advance in simplified air conditioning represented a great value then.

1938 **EXPERIENCE** gives BIGGER VALUE! The latest Carrier all-in-one cabinet shown above. One-half the size of the 1932 unit . . . no larger than a console radio. But it conditions the same amount of air . . . and costs 40% less!

Stores and Offices 40% OFF, TOO!

• You get big value in this Carrier all-in-one cabinet Air Conditioner too, for stores and suites of offices. It takes up just about the same floor space as the 1932 unit, but it delivers 4 times the quantity of air and 3 times the cooling. Its cost, completely installed, ready to operate is 30% to 40% less than previous Carrier Air Conditioning of similar capacity.

A 1938 Carrier Portable Air Conditioner in your home or office means endless comfort and pleasure. For in this one beautiful piece of furniture, no larger than a console radio, you get true Carrier Air Conditioning. No room alterations are necessary. It plugs in just like a radio. Needs no water or drain connections. Your Carrier Portable can be wheeled into place. Fresh, clean air fills your room at once. Excess moisture is taken out of the air. Invigorating air is circulated constantly without a trace of a draft. The same engineering skill that has made the world's largest air conditioning installations brings you this compact room cooler. Learn how it can be bought on the budget plan.

To locate nearest Carrier dealer, look in your classified telephone directory under "Air Conditioning"

★ ★ ★

CARRIER CORPORATION,
Syracuse, N. Y., Desk 961

• Please send me, without obligation, full particulars about Carrier Air Conditioning for my ☐ home; ☐ office; ☐ store.

Name _____

Address _____

City _____ State _____

THE NEW SILHOUETTE **Carrier** ROOM AIR CONDITIONER

BUILT BY THE PEOPLE WHO KNOW AIR CONDITIONING BEST. CARRIER CORPORATION, SYRACUSE, NEW YORK

1954

The End of the Ice Trade: Carrier Air Conditioning & Refrigeration #1959

In ancient Egypt, people hung water soaked reeds over windows. As the air blew in, the water evaporated and cooled the air. Ancient peoples in tropical climates liked the cool, for themselves and their beverages, but not for food preservation.

During the 1800s, a commercial ice trade started; people used insulated containers to keep ice longer to cool foods and drinks.

Jacob Perkins polymath inventor of vapor compression refrigeration
Jacob Perkins, an important numismatist, invented vapor-compression refrigeration in 1834. It worked, but had no commercial success. It was he who engraved Massachusetts cents in 1788, and four tokens with Washington's image. Perkins' neighbor, Nicholas Pike, wrote to George Washington enclosing a 1792 gold presentation piece with a 13 star eagle reverse, hoping for a position for Perkins at the mint. Washington returned it. Perkins also engraved and sold the wildly successful Washington funeral medals.

He later invented an "unforgeable" banknote. But, failing to attract interest in the US, he moved to England, where he set up a banknote printing factory in 1819 with great success. He also printed the penny black, the first adhesive postal stamp in the world. His other inventions included:

- A high pressure steam boiler
- A counter-flow heat exchanger
- The steam gun (a machine gun powered by steam, firing 1,000 musket balls a minute)
- A bathometer, which measured ocean depth by its water pressure
- An improved paddle wheel
- A method of ventilating ship holds

Carré ammonia refrigerations system
In 1859, the Frenchman Ferdinand Carré invented an ammonia refrigeration system. These had some commercial success. But the machines were unreliable and expensive. It would take until the 1880s for refrigeration plants to make ice cheaper than harvested ice.

In the 1860s, ice-cooled rail cars transported food. In 1880, the first patent for a mechanically refrigerated car appeared. But it took another ten years before they became commonplace.

Home fridges
GE released their first home fridge in 1911, which ran on gas. Their first electric model was in 1927. By 1930, 90% of city homes had electricity, but only 10% of rural homes. By 1940, more than half of US households owned an electric fridge.

Southern coolness
Cool food is one thing, but cool bodies are another. How did people fight battles in the summer heat in Mexico wearing all those uniforms? In the 1920s, hospitals, factories and movie theaters installed air conditioning. But it was another 30 years before home air conditioning came. How did people exist?

During southern summers, they wore summer clothes of cotton and linen and could retire to their cooler cellars. They would work 4 am to midday, when it was cooler. Many left home in the summer for coastal shacks with a sea breeze. People would sleep in roofed porches outside with a good breeze.

Rooms had double-hung windows. People raised all their lower windows and lowered all their upper windows on every side of the house. This created a circular flow, removing hot upper air and bringing in cool lower air. High windows with high ceilings exaggerated this effect. Shutters and wide roof overhangs kept shade around the windows, cooling masonry walls. Thick walls and masonry floors created cold sinks. Houses had cellars.

Cities down south had more green space, with many more trees and less blacktop heat sinks, so they were not as hot as they are now.

I recall as a child living in Singapore in the 1970s. We had no air conditioning. Every room had a ceiling fan. All rooms had cool marble or terrazzo floors. Bedrooms had wide corridors on each side for shade, with bar doors into the bedroom and screened windows for a cross breeze. We took a tepid bath twice a day.

Fans
Women used hand held fans. In the 1800s, rocking chair powered fans even started! In 1886, the first electric fan appeared. Many a person down south spent really hot days in front of a fan blowing across a big lump of ice.

Swamp Coolers
These were fans blowing past a damp cloth fed by water, creating evaporative cooling. They worked better in dry climates, but could only drop the temperature up to 15 degrees.

Air conditioning
This was the real deal. Home air conditioners started in the US in the 1950s. Before that, big business stayed up north in milder climes. Employees in Florida, Texas, Arizona, and New Mexico could not function in the heat and compete. Indeed, many businesses in the South simply closed during summer. After air conditioning, an estimated 20 to 100 million Americans moved to the sunbelt to find work.

Willis Carrier, 1876-1950

Willis Carrier and air conditioning
With air conditioning, architectural designs changed. Passive techniques fell out of fashion as air conditioning made them unnecessary, though that may now change.

In 1902, a printing company in Buffalo, NY, had a problem with humidity changing paper size while doing four color printing. They hired Willis Carrier who had a degree in engineering from Cornell. He recognized you cannot just change humidity; you have to change the temperature, circulate the air, and clean the air. The machine he designed did the trick.

Four years later, Carrier patented his idea, and two years later started Carrier Air Conditioning as a subsidiary of the Buffalo Forge Company where he worked. Textile plants, also sensitive to humidity, adopted air conditioning early.

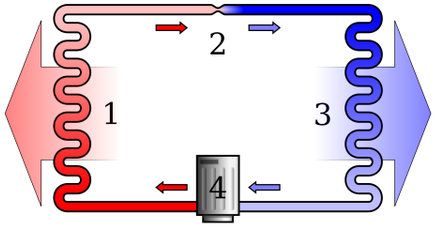
In 1914, seven engineers pooled their life savings and started Carrier Engineering Corporation. They ran into trouble during the Great Depression, but soon picked up. They supplied air conditioning to large buildings like hospitals, cinemas, factories and sky scrapers. In 1925, they built the Madison Square Garden indoor ice hockey arena in New York City.

Home air conditioning cost $10,000-$50,000 in the 1920s! Early on, they used ammonia, methyl chloride, and sulfur dioxide as refrigerants, all very toxic. In 1928, DuPont invented Freon — less toxic and more efficient. Three years later, Carrier installed the first self-contained home air conditioning unit, the *Atmospheric Cabinet* (see opposite).

In 1931, Shultz and Sherman sold a window unit for $350, about four months' labor back then. No wonder people were slow to adopt home air conditioning! The Packard Motor Company introduced the first car air conditioner in 1939. In 1945, Robert Sherman invented a cooling and heating window unit.

Window unit sales reached one million in 1953, when they became a status symbol. The units were around the same price ($350) but by then, represented only one month's labor. Today, a similar unit is $180, only 1 1/2 day's labor. Heat pumps, which are air conditioners with a reversible valve, are now increasingly popular as they can both heat and cool.

Like Otis Elevators, they became a target of acquisition mania. United Technologies bought them in 1979, then spun them off as a public company in 2020. Today Carrier Global Corporation is worth over $60 billion, employing over 50,000 people.



How air conditioners work
1. Condensing coil — fan blows off heat
2. Expansion valve — when CFCs evaporate to gas, cools by latent heat of evaporation
3. Evaporator coil — fan blows off cool air

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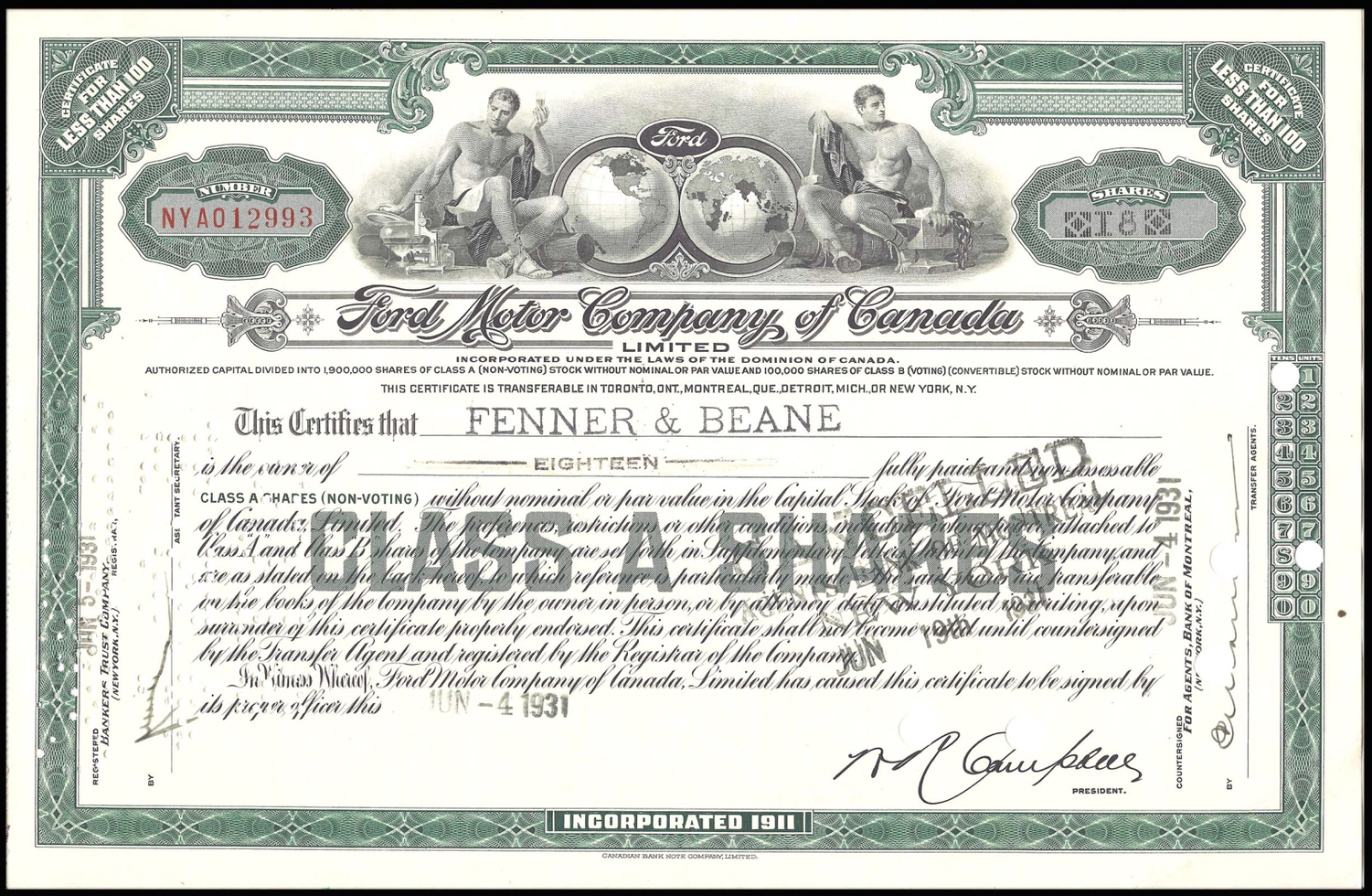
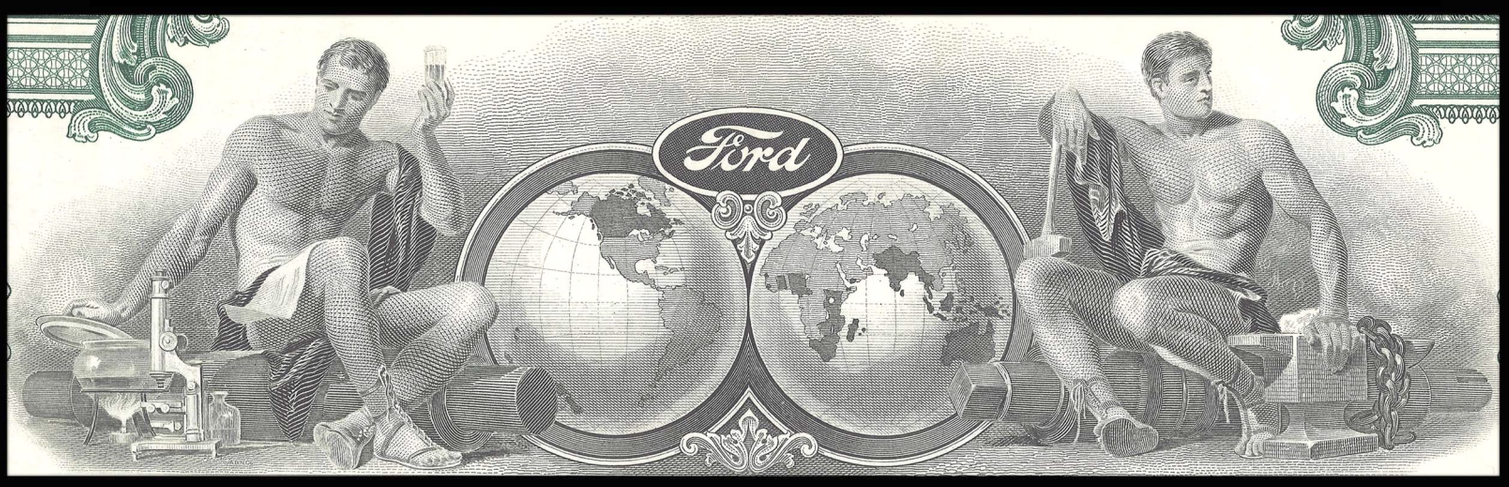
5 OTHER ICONIC STOCK CERTIFICATES



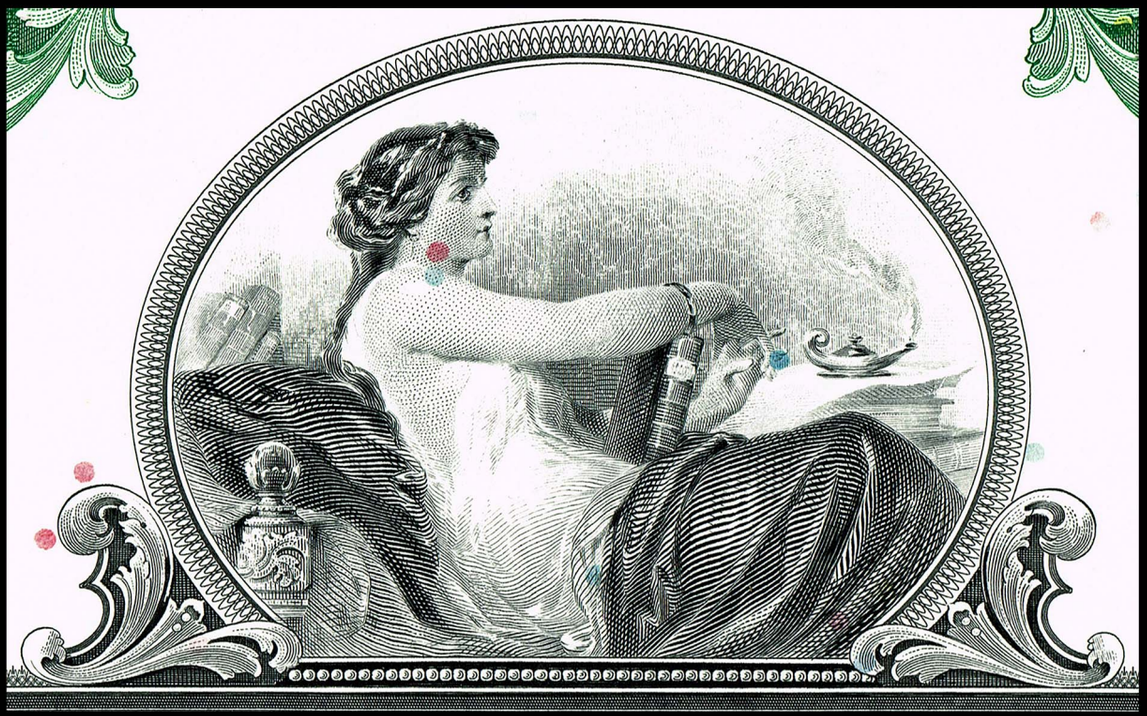
CLASS A SHARES

In 1903, Ford started one of the first large scale auto manufacturers in Detroit. The next year, he transferred his patent and selling rights to Canada to sell to them and the British Empire without tariffs. In 1914, his Detroit workers quickly left boring $2 a day factory jobs, so Ford increased their pay to an astounding $5 a day to retain workers, and to create more buyers for his autos.



William Crapo Durant (yes, that was his name) founded GM in 1908. GM joined the DJIA from 1925 until its bankruptcy in 2009, the longest streak for any company in the DJIA except for GE. Alfred Sloan (of the Sloan-Kettering Institute), president from 1923 to 1956, marketed cars as a status symbol. He used the multi-brand "stable" concept, with yearly styling changes and planned obsolescence. GM dwarfed others in size, becoming the first to make over $1 billion profit a year. The Art Nouveau vignette below shows a car, a truck, and a diesel-electric locomotive.

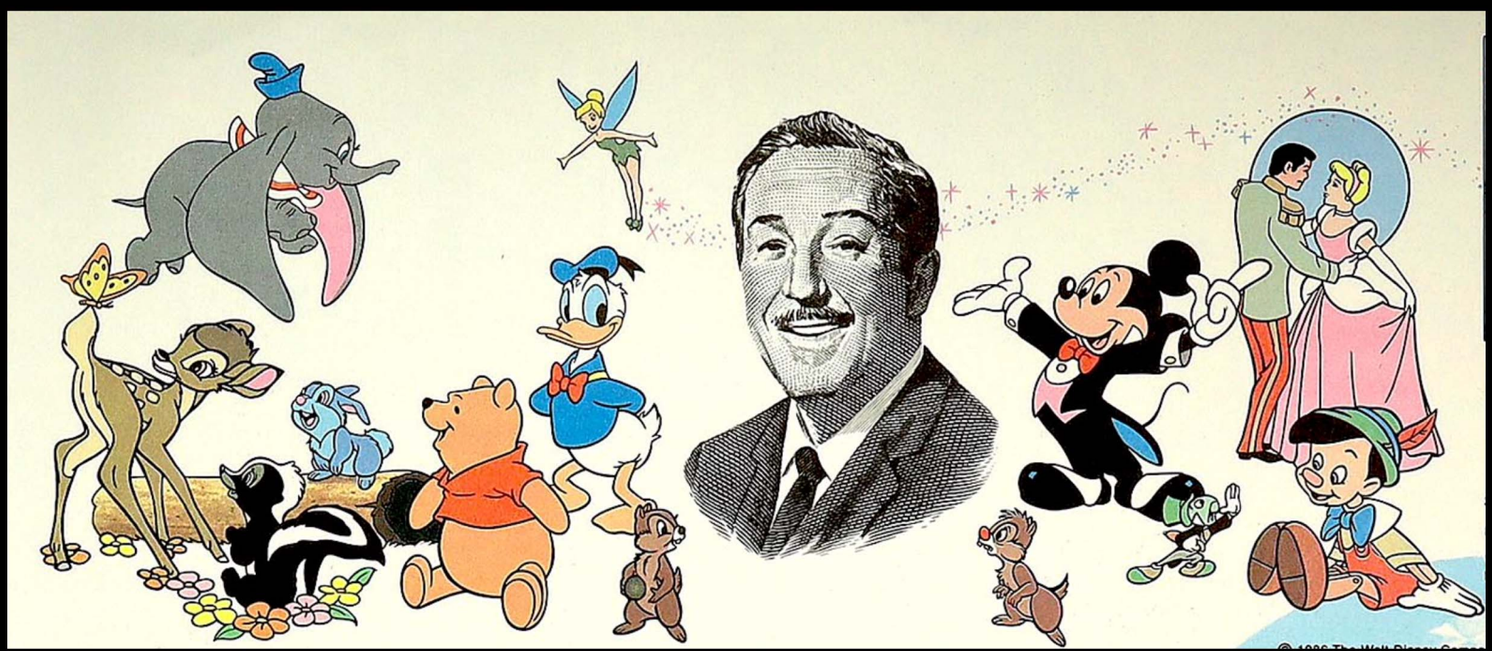
Founded in 1886, Coca-Cola became synonymous with American culture, branding, and marketing success. The Coke bottle is iconic. They revolutionized the soft drink industry. Since their IPO in 1919, they have paid consistent dividends and have seen enormous growth. Today, they are capitalized at $280 billion.

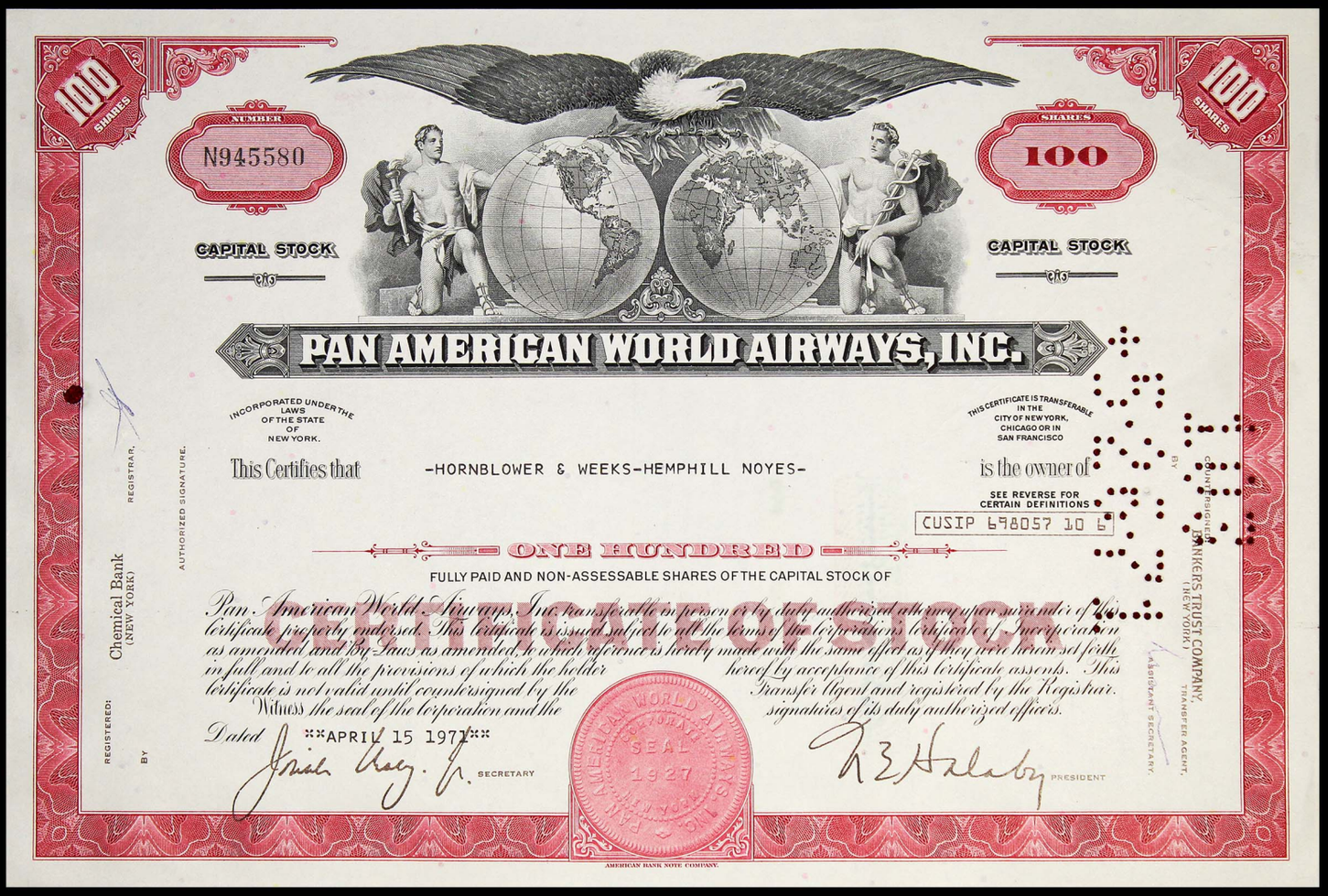


ENCHANTED CASTLE UNDERPRINT

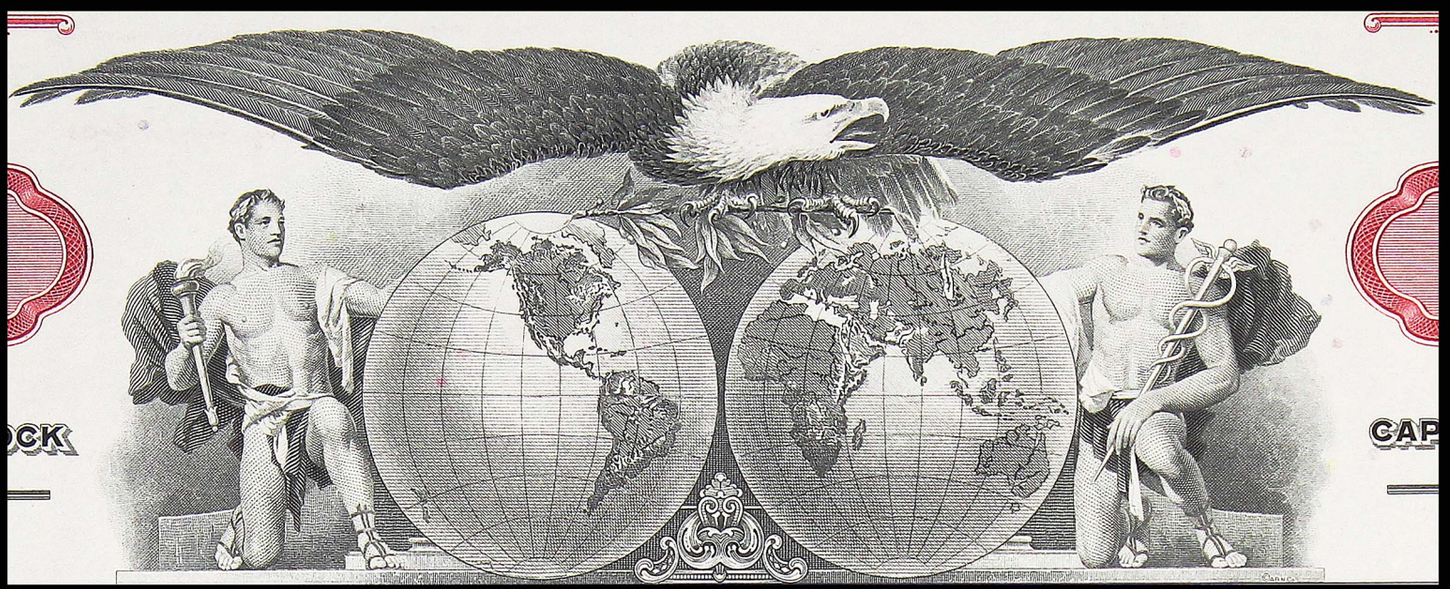
The Walt Disney Company made groundbreaking contributions to animation, theme parks, and entertainment technology. This certificate shows many of their iconic characters.

DUMBO
TINKER BELL
THUMPER RABBIT
DONALD DUCK
WALT DISNEY
BAMBI
WINNIE THE POOH
MICKEY MOUSE
CINDERELLA
FLOWER THE SKUNK
CHIP LEFT, AND DALE RIGHT, CHIPMUNKS
JIMINY CRICKET
PINOCCHIO

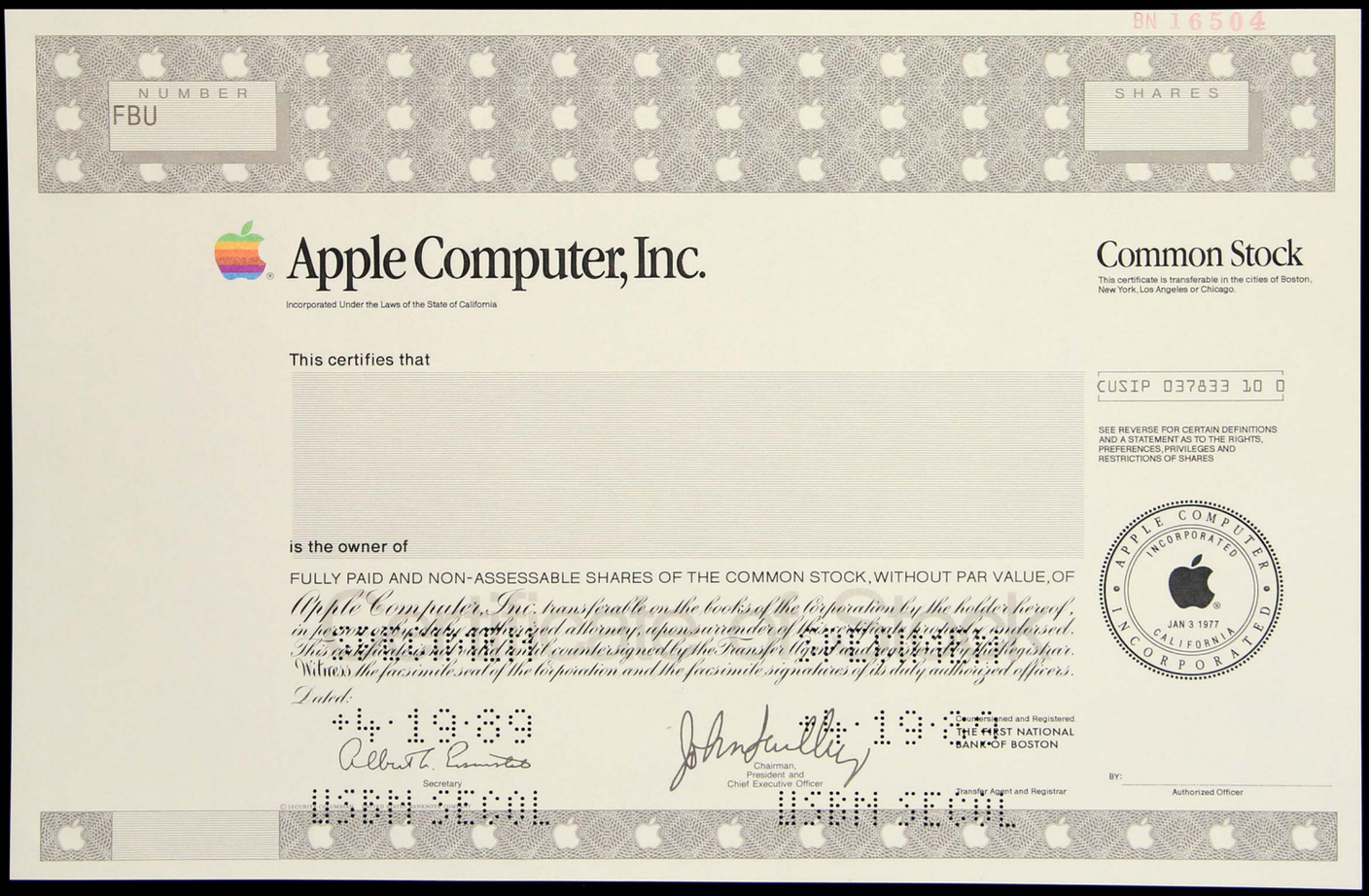




Pan American World Airways (Pan Am) pioneered and dominated international travel from the 1930s to the 1970s, opening up public global travel. This 1971 certificate shows a globe. The same year, they introduced their famous globe logo (shown left). The American bald eagle symbolizes flight. The god on the left with a torch is Hephaestus (Vulcan in Rome), god of metalworking and fire. The god on the right with a caduceus is Hermes (Mercury in Rome), the messenger god and god of travel. In 1978, the US deregulated airlines. In 1991, Pan Am went bankrupt after increasing competition. They sold their Pacific routes to United Airlines, and their Atlantic routes to Delta Air Lines.



AT&T was originally part of Alexander Graham Bell's own company, the Bell Telephone Company. The lower certificate shows him in the middle of the world with the label "Inventor of the telephone". The upper certificate shows four old telephones circling the world with electricity springing from the earth. AT&T developed the first coast-to-coast phone line and their Bell Labs developed the first transistor. "Ma Bell" was a government-sanctioned monopoly until broken up into regional "Baby Bells" in 1984.


BN 16504

NUMBER FBU

SHARES

Apple Computer, Inc.

Incorporated Under the Laws of the State of California

Common Stock

This certificate is transferable in the cities of Boston, New York, Los Angeles or Chicago.

This certifies that

CUSIP 037833 10 0

SEE REVERSE FOR CERTAIN DEFINITIONS AND A STATEMENT AS TO THE RIGHTS, PREFERENCES, PRIVILEGES AND RESTRICTIONS OF SHARES

APPLE COMPUTER INCORPORATED JAN 3 1977 CALIFORNIA INCORPORATED

is the owner of

FULLY PAID AND NON-ASSESSABLE SHARES OF THE COMMON STOCK, WITHOUT PAR VALUE, OF

Apple Computer, Inc. transferable on the books of the Corporation by the holder hereof, in person or by duly authorized attorney, upon surrender of this certificate properly endorsed. This certificate is not valid until countersigned by the Transfer Agent and registered by the Registrar.

Witness the facsimile seal of the Corporation and the facsimile signatures of its duly authorized officers.

Dated: 4-19-89

Albert A. Eisenstat
Secretary

4-19-89

John Sculley
Chairman, President and Chief Executive Officer

Countersigned and Registered
THE FIRST NATIONAL BANK OF BOSTON
Transfer Agent and Registrar

BY: _____
Authorized Officer

USBM SECOL

USBM SECOL

Increasing volumes of stock trades started overwhelming Wall Street around 1970. In 2000, the Securities and Exchange Commission (SEC) and Depository Trust Company (DTC) pushed companies to adopt electronic stock ownership. In 2012, the DTC ended paper certificates, though some companies have continued issuing paper certificates as collectibles. Apple incorporated in 1977 and Microsoft incorporated in 1993, both now trillion dollar companies.

066900

NUMBER MS

Microsoft

INCORPORATED UNDER THE LAWS OF THE STATE OF WASHINGTON

SHARES

SEE REVERSE FOR CERTAIN DEFINITIONS

CUSIP 594918 10 4

This Certifies that

is the registered holder of

FULLY-PAID AND NON-ASSESSABLE SHARES OF THE COMMON STOCK OF

MICROSOFT CORPORATION

transferable on the books of the Corporation by the holder hereof, in person or by duly authorized attorney, upon surrender of this certificate properly endorsed. This certificate is not valid until countersigned and registered by the Transfer Agent and Registrar.

Witness the facsimile seal of the Corporation and the facsimile signatures of its duly authorized officers.

Dated:

SPECIMEN

SPECIMEN

MICROSOFT CORPORATION CORPORATE SEAL 1993 WASHINGTON

SECRETARY

PRESIDENT AND CHIEF EXECUTIVE OFFICER

COUNTERSIGNED AND REGISTERED: CHASEMELLON SHAREHOLDER SERVICES, L.L.C. TRANSFER AGENT AND REGISTRAR

BY: AUTHORIZED SIGNATURE

USBM SECOL

USBM SECOL

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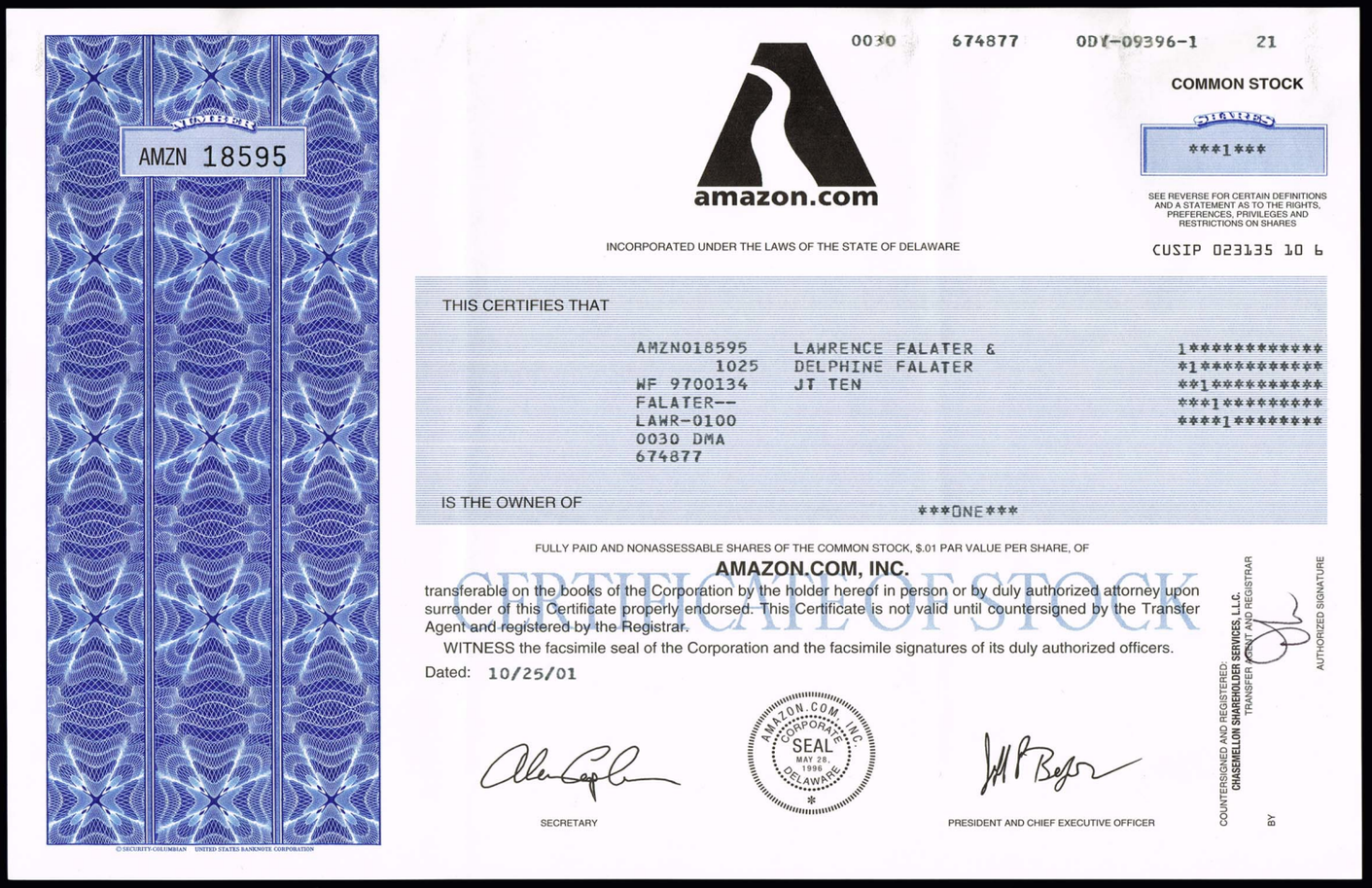

NUMBER AMZN 18595

0030 674877 ODY-09396-1 21

amazon.com

INCORPORATED UNDER THE LAWS OF THE STATE OF DELAWARE

COMMON STOCK

SHARES ***1***

SEE REVERSE FOR CERTAIN DEFINITIONS AND A STATEMENT AS TO THE RIGHTS, PREFERENCES, PRIVILEGES AND RESTRICTIONS ON SHARES

CUSIP 023135 10 6

THIS CERTIFIES THAT

AMZN018595 1025
WF 9700134
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LAWR-0100
0030 DMA
674877

LAWRENCE FALATER &
DELPHINE FALATER
JT TEN

1**********
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IS THE OWNER OF ***ONE***

FULLY PAID AND NONASSESSABLE SHARES OF THE COMMON STOCK, $.01 PAR VALUE PER SHARE, OF

AMAZON.COM, INC.

CERTIFICATE OF STOCK

transferable on the books of the Corporation by the holder hereof in person or by duly authorized attorney upon surrender of this Certificate properly endorsed. This Certificate is not valid until countersigned by the Transfer Agent and registered by the Registrar.

WITNESS the facsimile seal of the Corporation and the facsimile signatures of its duly authorized officers.

Dated: 10/25/01

AMAZON.COM, INC. CORPORATE SEAL MAY 29, 1996 DELAWARE

SECRETARY

PRESIDENT AND CHIEF EXECUTIVE OFFICER

COUNTERSIGNED AND REGISTERED: CHASEMELLON SHAREHOLDER SERVICES, L.L.C. TRANSFER AGENT AND REGISTRAR

BY AUTHORIZED SIGNATURE

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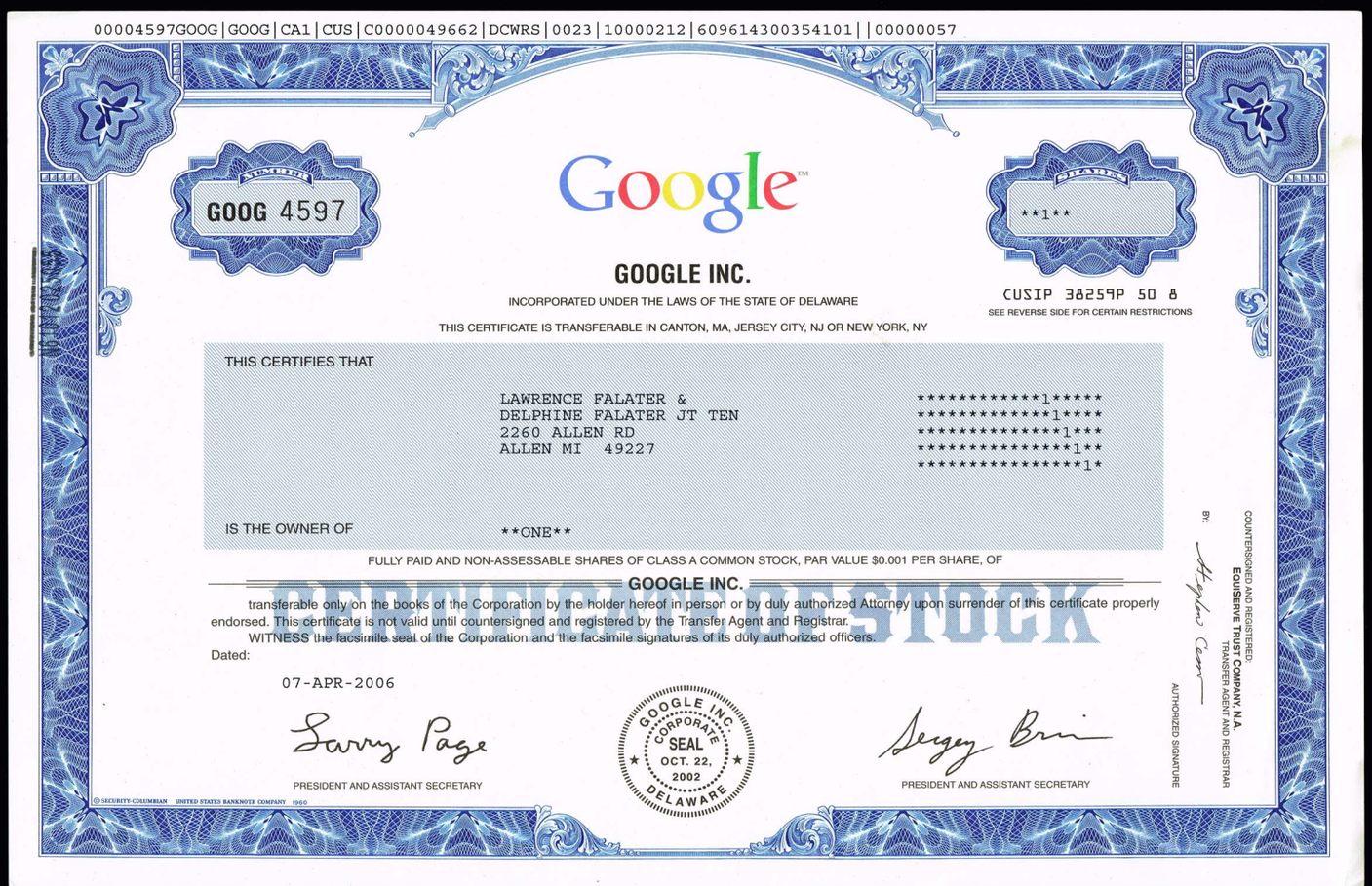
Amazon incorporated in 1996, Google incorporated in 2002.
Both are also now trillion dollar companies.



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NUMBER GOOG 4597

Google™

SHARES **1**

GOOGLE INC.

INCORPORATED UNDER THE LAWS OF THE STATE OF DELAWARE

CUSIP 38259P 50 8

SEE REVERSE SIDE FOR CERTAIN RESTRICTIONS

THIS CERTIFICATE IS TRANSFERABLE IN CANTON, MA, JERSEY CITY, NJ OR NEW YORK, NY

THIS CERTIFIES THAT

LAWRENCE FALATER &
DELPHINE FALATER JT TEN
2260 ALLEN RD
ALLEN MI 49227

**********1*****
*********1*****
********1******
*******1*******
******1********

IS THE OWNER OF **ONE**

FULLY PAID AND NON-ASSESSABLE SHARES OF CLASS A COMMON STOCK, PAR VALUE $0.001 PER SHARE, OF

GOOGLE INC.

CERTIFICATE OF STOCK

transferable only on the books of the Corporation by the holder hereof in person or by duly authorized Attorney upon surrender of this certificate properly endorsed. This certificate is not valid until countersigned and registered by the Transfer Agent and Registrar.

WITNESS the facsimile seal of the Corporation and the facsimile signatures of its duly authorized officers.

Dated: 07-APR-2006

Larry Page

PRESIDENT AND ASSISTANT SECRETARY

GOOGLE INC. CORPORATE SEAL OCT. 22, 2002 DELAWARE

Sergey Brin

PRESIDENT AND ASSISTANT SECRETARY

COUNTERSIGNED AND REGISTERED: EQUISERVE TRUST COMPANY, N.A. TRANSFER AGENT AND REGISTRAR

BY: AUTHORIZED SIGNATURE

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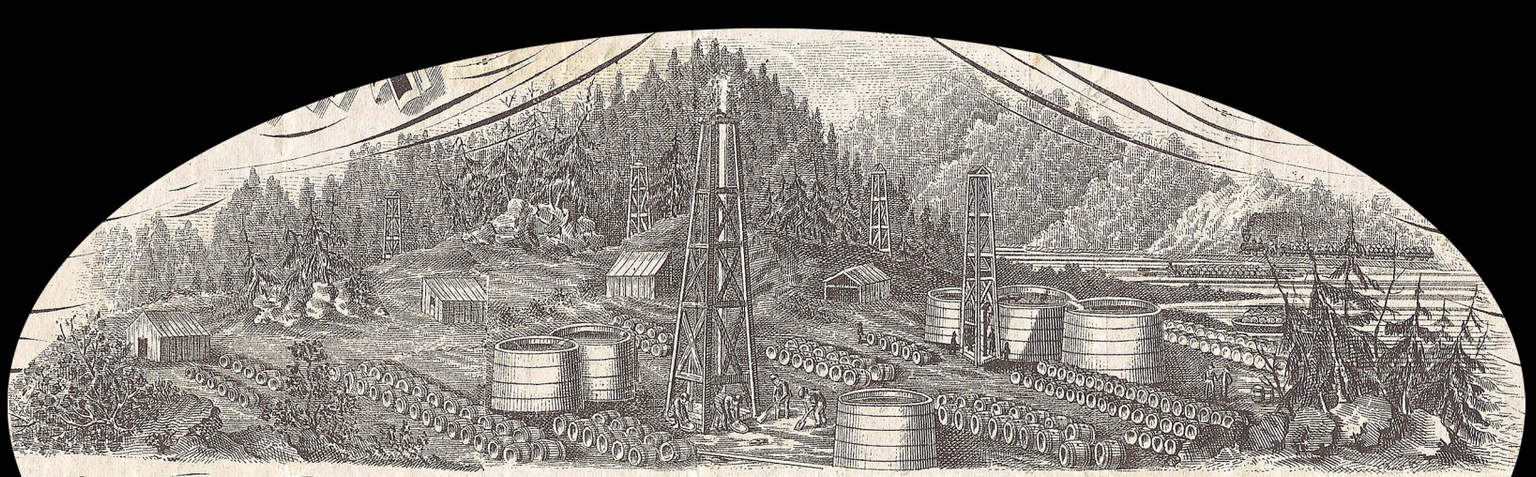
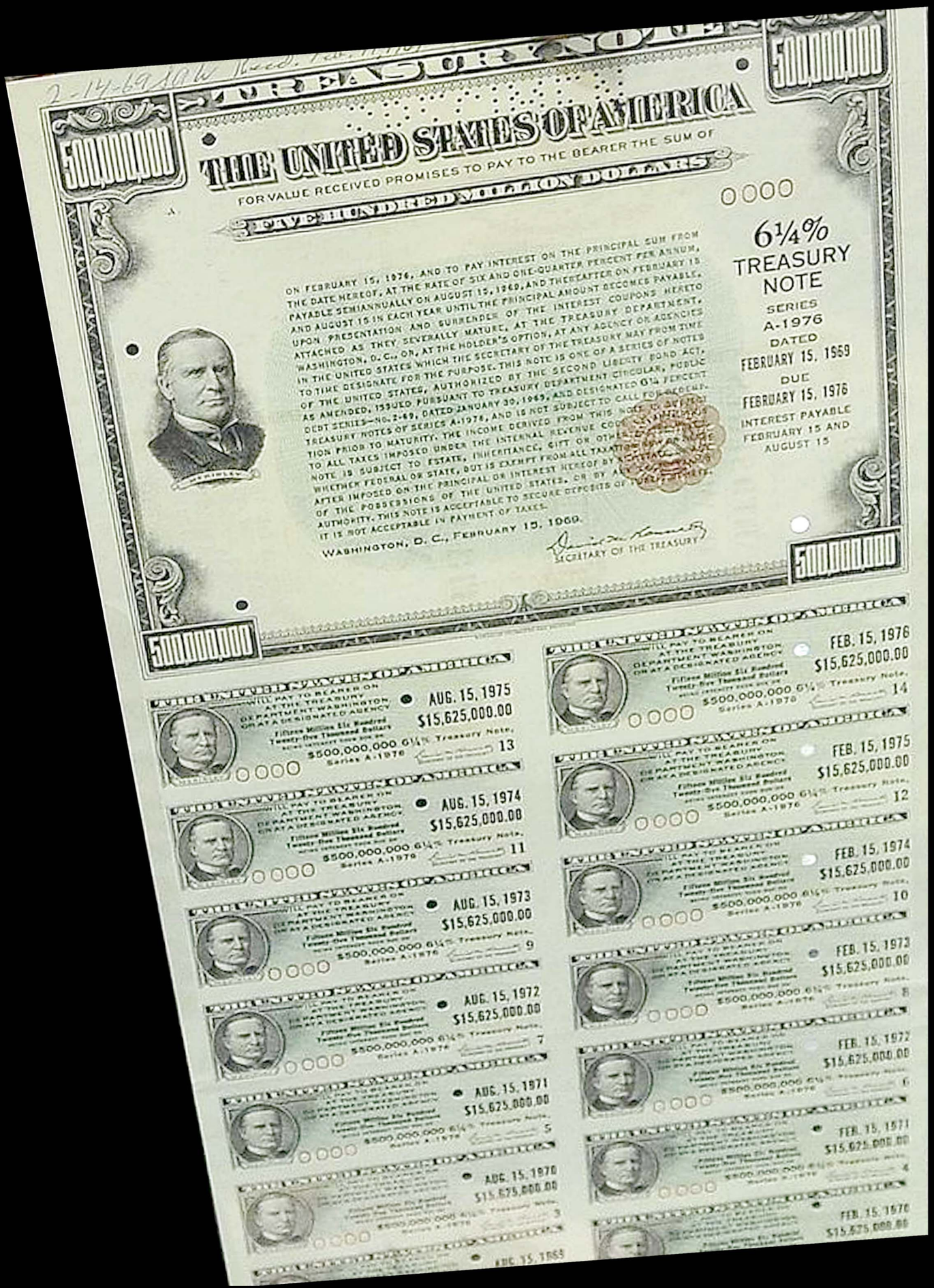
Facebook never issued stock certificates. This is a picture of the US Securities and Exchange Commission's form of Registrant's Class B Certificates. A similar certificate is available from giveashare.com, who issue single shares to frame, or as a gift, saying they are replicas only.

A certificate I do not own. An old postcard says the sunflower was the State flower of Nevada. Not so! It is the State flower of Kansas. But this mining company incorporated in Colorado!

Certificate of the Western Pennsylvania Oil Company from 1865. They used oil then for lighting, 30 years before they would use it for autos. Oil was first found in Texas in 1901.



Early view of a Pennsylvania oilfield in 1865, 36 years before they found oil in Texas.



Half a billion dollar US Savings Bond seen at a coin show! From 1955 to 1969, they used $100 million to $500 million Treasury Notes in large-scale transactions between banks and the US Treasury. The US used these to help repay Second World War debt. Today this would be done electronically.

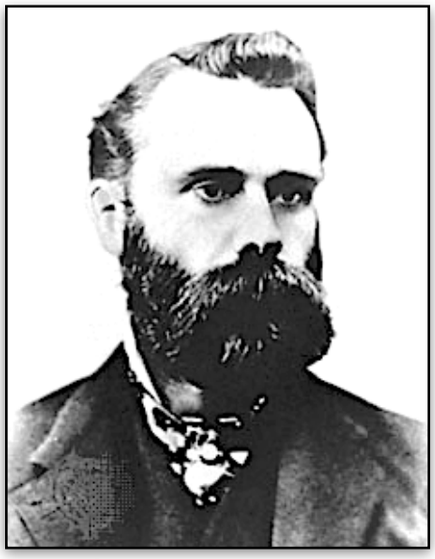
6

HISTORY OF THE DOW JONES INDUSTRIAL AVERAGE

Why is the Dow Jones Industrial Average (DJIA or "the Dow") so important?
Because it is the granddaddy of them all and goes back the furthest. The following is taken from my book, *Dow Jones by Peter Jones.*

Charles Dow (1851-1902) was a journalist who, with Edward Jones, founded the Wall Street Journal (WSJ) and the Dow Jones Co.

Dow came from a poor farming family in rural Sterling, Connecticut, just 20 miles from my home. At 21, he joined the Springfield Daily Republican, a newspaper in Massachusetts, as a city reporter. He transferred to the Providence Star, then the Providence Journal as a business writer. Renowned as a prominent early technical stock analyst, he published carefully researched books on local businesses.



Charles Dow, 1851-1902

Edward Jones, 1856-1920, — no relative!

Dow's editor at the Providence Journal, G. W. Danielson, sent him to Leadville, Colorado, to report on the silver mining craze in 1879. On the train journey, Dow interviewed many successful businessmen and later wrote nine "Leadville Letters" based on his analysis. This was his early education as a financial reporter.
In 1880 when he was 29, Dow moved to New York City to work for Kiernan Wall Street Financial News Bureau. He asked a fellow reporter, Edward Jones from Providence, to join him. Jones had dropped out of Brown University but was a skilled stock analyst and statistician. In 1882, Dow and Jones left their employers to set up their own business. Incorruptibility became their claim to fame and led to success.

Dow Jones & Company specimen stock certificate, hole and stamp canceled

New York Stock Exchange member certificate — a seat cost $3,575,000 in 2005. But in 2006, the NYSE became a public company and stopped selling seats. The 1,366 seat owners were paid off with shares, cash and dividends.

Charles Bergstresser, a third silent partner, joined them and managed company finances and employees. He was also the cousin of Charles Dow's wife.

In 1883, Dow Jones & Co published the *Customer's Afternoon Letter,* a two-page summary of financial news. They started the first stock index, the Dow Jones Transport Average (DJTA) (also called the Dow Jones Railroad Average) in 1884. The average started at 40.94. It comprised eleven stocks: nine railroad stocks, Western Union and Pacific Mail Steamship.

In 1885, Dow became a member of the New York Stock Exchange (NYSE). He seldom traded and only took the seat on the stock exchange as a favor to a friend with immigration problems. On the left you can see an old NYSE member certificate.

By 1889, they had a staff of 50. The Customer's Afternoon Letter grew into the Wall Street Journal (WSJ). It sold for two cents a day. They wanted no one to influence them, so they refused advertising. No one could buy Dow's reporters. If a public company would not give out profit or loss information, Dow said so. They had correspondents and telegraph connections all over the country.

In 1896, Dow added a second index, the Dow Jones Industrial Average (DJIA), with 12 stocks. Dow theorized a mathematical relationship between stock market trends and business trends. He also showed the DJIA and DJTA were correlated.

In 1898, WSJ published a morning edition. They added general news and editorial opinions, not just financial news. A year later, Jones retired. In 1902, Dow became ill with heart disease, and Bergstresser wanted to retire too. So, they sold their company to Clarence Barron, their Boston correspondent, for $130,000. That year, Dow died from a heart attack.

Clarence Barron was a flamboyant eccentric, but a journalistic genius. And with his son-in-law, Hugh Bancroft (who had married his daughter Jane), the paper prospered.

Clarence Barron

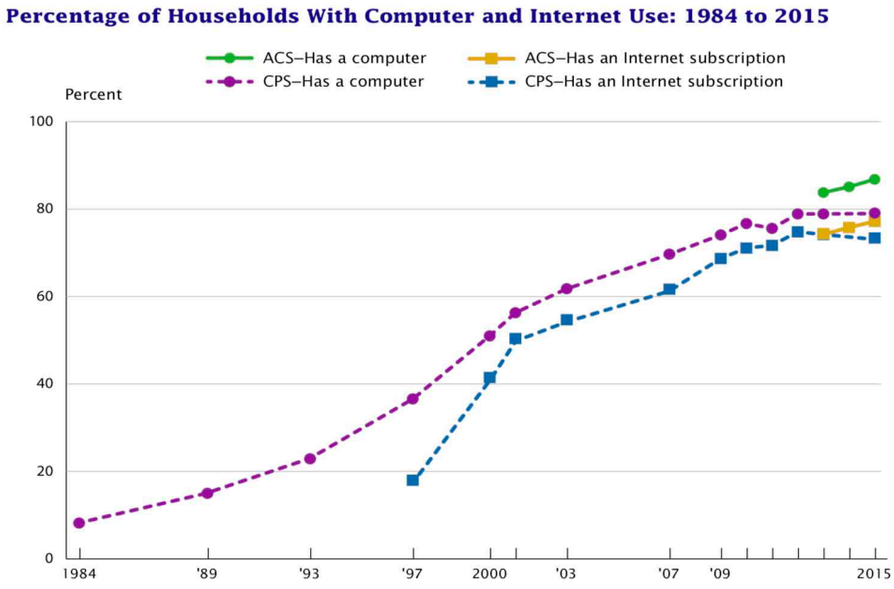
Barron died in 1928, but his son-in-law's family (the Bancrofts) held 64% of the voting stock from the 1920s to 2007. During the depression, circulation fell to 28,000.

Barron's daughter, Jane, instituted an employee profit-sharing plan just before she died in 1949. This was a prescient move. It would take another 50 years before defined contribution plans replaced defined benefit plans (read 401K replacing pensions). Her daughter Jane Cook took over from her on the board. Thus, there was a continuous family ownership from the 1902 original Boston correspondent, Barron, until 2007.

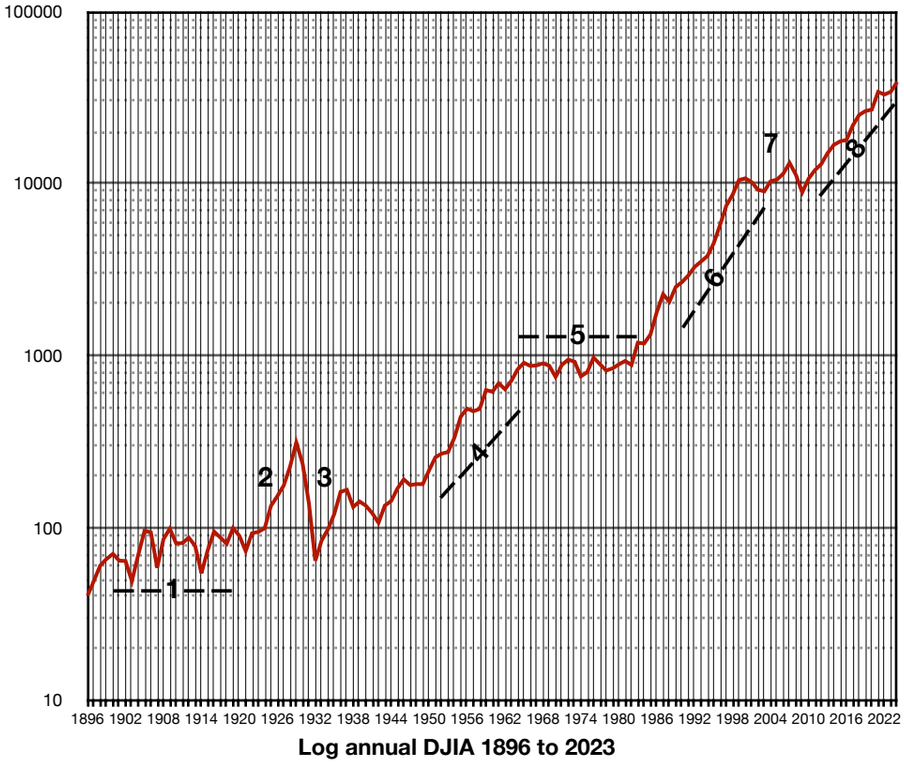
In the 1930s, people developed a global Teletype network called Telex, the precursor of today's internet. It enabled multiple people to print on-the-spot business news, stock prices, weather reports, etc., using a typewriter hooked to a telegraph, telephone or dedicated wire. They called these typewriters, teleprinters, Teletype or TTY. You could ask certain questions like "weather report please," but it did not have search capabilities like today's internet.

By 1961, WSJ circulation rose to 800,000 and capitalization of the Dow Jones & Company rose to $235 million. Circulation would double in another 17 years.

Business computing with IBM started before home computers, but only with local networks. Home computers and the internet started in the 1980s (see the graph top right). In 1990, Sir Tim Berners-Lee invented the World Wide Web. Home computers took off.



Graph showing that American home internet adoption occurred 1990 – 2010



Log annual DJIA 1896 to 2023

Against this backdrop, the Dow Jones News Retrieval became the preferred business news electronic database in 1989. Further electronic data delivery followed, like the DJ Newswires in 1996. But this DJ division did poorly, selling at a $922 million loss in 1998.

Dow Jones & Co invested in Asian and European business TV networks and in 1998, partnered with NBC and CNBC in the US. In 2007, Rupert Murdoch's News Corporation bought Dow Jones & Co for $5 billion — 70% more than its market value. Murdoch also owned the Fox News Network. He wisely left the content of Fox and WSJ alone. WSJ today circulates in nine languages. The top three newspapers in the US are now USA Today with a circulation of 4.1 million, WSJ with 2.3 million, and the New York Times with 2.1 million.

In 2012, Murdoch's News Corp sold 90% of the proprietary Dow Jones indices, including DJIA, to the Chicago Mercantile Exchange for $608 million.

Today, the DJIA index is held by the S&P Dow Jones Indices, a joint venture between S&P Global, the CME Group, and News Corp (Rupert Murdoch's company). The DJIA remains the world's most widely quoted stock market indicator.

DJIA illustrates US economic history

The DJIA (shown graphically above) illustrates the history of business in America:

1. During the **ten panics from 1893 to 1923**, the DJIA rose from around 40 to 90 with a lot of hiccups along the way. Today we call panics recessions.

2. From 1923 to 1929 (the **roaring twenties**), it rose from 100 to 381.

3. The 1929 **Wall Street Crash**, when it fell from a peak of 381 to its nadir of 40 in 1933. It then gradually returned to levels of 100-200.

4. **Post-depression recovery** from 100 to 800 between the years 1942 to 1963.

5. **1963-1981 stagnation** from 800 to 900. This reflected the stagflation and the oil crises of 1973 and 1979 (during the Iranian Revolution). The Vietnam War and Watergate scandal also contributed to stock stagnation during this period. Stagflation meant inflation and stagnation, i.e. ,unemployment, a term coined in the UK.

6. **1981 to 1999 rise** again 900 to 10,000

7. **1999 to 2010 stagnation** again around 10,000. This started with the 2001 dot-com bubble, then the Enron and WorldCom scandals eroding investor confidence, then the 2009 subprime mortgage crisis.

8. **2010 to 2024 rise** again from around 10,000 to 44,000

There is a tendency to read too much politics and economics behind the reasons for the Dows variations. But the market simply reflects confidence in the financial future. Investors can be fickle and skittish and often move like a herd.

Alexandre Dumas wrote *The Black Tulip* in 1850, describing a character during the 1636 tulipomania craze in Holland. People paid increasingly absurd sums for new and fashionable tulip bulb varieties. At its peak, some investors even sold their house to buy a single tulip bulb! The market bubble collapsed the next year.

As the home computer became of age by 1990, venture capitalists and investment banks offered easy money for dot-coms. Many investors started using derivatives to leverage their investments. The US Dot-com bubble of 1997-2001 led to an unwarranted rise in stock prices.

Traditionally, Price-Earnings Ratios (PER) are around 10-20. Thus, $1 of earnings meant a stock value of $10-20. But during the dot-com run up PERs rose to over 100, sometimes even reaching 200! I recall friends urging me to invest, but my gut said no. I was not sophisticated enough to say, “A bubble is coming”. I just knew it was madness. Most of the stocks were NASDAQ, which fell from a peak of 5,000 in 2000 to 1,114 in 2002.

The Gilded Age had led to regulations to limit corporate abuse, monopolies, child labor, pollution, and to reduce boom and bust cycles. In the 1970s, Chicago School economists preached deregulation, leading to several acts deregulating financial institutions.

The 1980 MCA (Depository Institution Deregulation and Monetary Control Act) repealed interest rate regulations in retail banking. This led to the Savings and Loan Crisis, in which 1,000 of 3,200 Savings and Loans Associations failed. This required a federal bailout by the Resolution Trust Corporation, costing taxpayers $130 billion by 1996.

Recession Date	GDP decrease	Peak unemployment	Duration	Notes	Severity rating /10
Panic of 1837	33%	10-33%	2-6 years	Jacksonian policy (Specie Circular saying all land purchases had to be with specie, and dissolving 2nd BUS), decreased English investment, loss confidence in paper money, 600 of 1500 banks failed bankrupting many. Cotton market collapsed. Banks stopped specie payment. Deflation hurt farmers & producers. Land bubble burst. Kids 2 inches shorter than prior generation, i.e., widespread famine. Britain called it “Hungry 40s”	9
Panic of 1857	23%		1.5 years	Ohio Life Ins & Trust Co failed bursting Railroad & land speculation. Europe recession reduced demand for US goods. Loss confidence in banks. Banks and businesses failed. SS Central America sunk — huge loss of gold supply.	7
1873-1896 World Long Depression US Depressions1873-9 & 1893-7	33%	8-18%	6-22 years	1870 Treaty of Frankfurt levied $200m reparations after Franco Prussian War. 1873 Vienna stock crash & failure of Jay Cooke Co. (largest US bank and N. Pacific RR owner). Coinage Act 1873 reduced silver price and mining interests, starting de facto gold standard. 1875 Resumption of Specie Act guaranteed specie redemption of paper money by 1879 ($481m since CW), reducing money supply, causing deflation. Financial contagion spread in US & Europe. Deflation & Great Railroad Strike of 1877. The US Populist movement & free silverites battled deflationist policy 1880s to 1896. Worldwide Long Depression 1873-1896. In US called Great Depression. But the 1929 Depression superceded it. An 1893 US stock crash dropped the GDP 10%. Gold reserve crisis in 1895.	8
1907 Banker’s panic	30%	8%	1 year	Run on Knickerbocker Trust Co deposits. Decreased money supply. Led to Fed Reserve System. NYSE fell 50%. JPM’s US Steel bought out Tennessee Coal & Iron	8
Depression of 1920-1	3-7%		1.5 years	Post WW1 economic shift from war to peace caused deflation, Wholesale prices decreased 37%. Roaring twenties took over afterwards	6
Great Depression 1929-1933	27%	25%	3.5 years	1. Restoring **gold standard** after 1st WW. US trade surplus increased US gold, causing foreign banks to increase interest rates, causing international economic decline. Smoot-Hawley Tariff Act further decreased international trade. 2. Massive German War reparations and **war debts** led to internat. credit collapse 3. **Run on US banks decreased money supply** leading to deflation. 4. **Stock bubble** buying on margin. Stock crash started 1929 DJIA 381 ->41 in 1931. Business closures caused unemployment, Distress selling decreased asset prices leading to decreased velocity of money. 5. Drought 1930 and **dust bowl** cause farm shortages.	10
1973 OPEC Oil Crisis	7%	9%	1.3 years	Quadrupling of oil prices, stagflation (high unemployment and high inflation in most of West) Worst recession between WW2 and subprime recession	8
Dot-com Bubble 2001	0.3%	6.3%	0.6 years	Dot-com bubble. PER 100-200 instead of usual 15-20. Lasted March to November. (9/11 occurred then). NASDAQ lost 80% of value by Oct 2002, when 100 million investors lost $5 trillion in stocks.	6-7
2009 Great Recession Subprime Mortgage	5%	10%	2 years	Financial deregulation led to insufficient financial oversight, and relaxing of rules for giving mortgages (subprime borrowers). US house prices increased making speculators buy over-leveraged houses. House prices dropped, bubble burst. Global financial crisis	9
COVID recession 2020	19%	15%	2 months	World wide pandemic of new virus from China started February 2020, leading to the Great Lockdown, causing worldwide recession. Brexit and Trump China tariffs may have exacerbated effect. Schools closed. 1 million died US, and 7 million worldwide. Short recession because lots of stimulus money, within a year GDP back on track.	6

Major US depressions ranked with explanations of their causes

Then the Financial Services Modernization Act of 1999 reversed the 1933 Glass-Steagall Act (which had separated commercial and investment banking). It allowed any institution to offer insurance, commercial banking and investment banking.

Long Term Capital Management (LTCM) was an over leveraged hedge fund which the Federal Reserve bailed out in 2000, costing taxpayers almost $4 billion. This sent a “too-big-to-fail” message to large financial institutions — the government will bail you out if you fail.

Banks in the 2000s started relaxing mortgage rules, leading to “subprime” borrowers. Investment banks, particularly Lehman Brothers, securitized these (pooling mortgages and selling them as securities to investors).

First, they sold Mortgage-Backed Securities (MBSs), which allowed investors to take part in tranched securities. The highest quality tranches were safe, but the bottom quality tranches or “toxic” loans were not. Later, they developed Collateralized Debt Obligations (CDOs), even more complex and even more unsafe. Rating agencies did not understand this financial legerdemain, and incorrectly said they were safe.

At the same time, home prices started increasing. Speculators with insufficient equity, “subprime borrowers,” bought multiple homes on the cheap, intending to “flip” them. Without proper financial oversight, investment banks, mortgage lenders, and speculators created a perfect storm.

When home prices stopped rising, the subprime bubble burst. Bubbles are not dead, nor will they die soon. The table above summarizes the major depressions in US history.

How should investors handle this risk?
Amateur investors need to keep their nose to the grindstone. They also need to remember to avoid something that is too good to be true, which is another way of saying they must recognize bubbles and scams. They need to educate themselves, recognize occasional good investment opportunities, and resign themselves to the humdrum realities of long-term investments. These include diversification, buy and hold strategies, using ETF indices, re-balancing, minimizing costs, using sensible tax strategies, etc.

Many amateur investors need a good investment advisor (not themselves), to protect them from making poor decisions. The problem is finding one that puts you first. Investors must also recognize the horizons ahead, and that the devil is always in the details. As a physician, I have often seen the same problem in medicine. Patients, especially academics, often think they know better and may have closely held and unreasonable biases, which can relegate them to a life of medical misery.

There are also themes that arise from studying the DJIA:

1. Initially, most stocks were railroads. This gradually changed to raw materials, then manufacturing, then networks, then information technology and finance. This evolution covered 140 years, from 1884 to 2024. The DJIA is the big daddy of all indices: no other index goes back that far.

2. Each company is like a country. They rise, then fall. Companies are seldom "King of the Hill" forever. Even the venerable GE, the only original DJIA 12 company still listed in modern times, was displaced by the Walgreens Boots Alliance in 2018.

3. There have always been cycles of growth and decline. The business cycle is the best known, but other cycles exist. Sometimes other factors intervene. An example is "Black Monday," a stock market crash with a 23% loss in a single day in 1987, possibly due to programmed computer trading. The only day with a worse loss was December 12, 1914, when stocks dropped 24%. The NYSE then closed for 15 weeks during the First World War.

How is the DJIA calculated?
There were four indices:
- **DJTA 1884** (9 railroads, Western Union and Pacific Mail Steamship), the growth sector back then. They first published the DJTA in the Customer's Afternoon Letter in 1884.
- **DJIA 1896** 12 industrial stocks, they first published this as the "Dow Dozen" in 1896 in the WSJ. The editors chose the stocks.
- **DJIA 1916 20** industrial stocks
- **DJIA 1928 30** industrial stocks

In the 1800s, stock exchanges did not quote stocks' price but quoted them as a percentage of their par value. Par value was the issue price. Though many stocks' par value was $100, some were $50, $25, or $5. Thus, if they quoted the stock at 82%, and the par value was $50, the stock cost $41 to buy.

In 1896, Dow Jones simply added 12 stocks' percentage quotes and divided by 12. That meant that if one stock was $25 at par, and another $100, you did not weight the average towards the pricier stock. Thus, even if the stock split or paid a dividend (which could reduce the stock price), the calculation was the same.

Thus, the **early DJIA** $= \sum \frac{12 \text{ percentages}}{12}$

In 1913, the NYSE switched to quoting stocks by price instead of a percentage of par value. To accommodate this, they used a divisor so that the equation gave the same index. Thus:

Thus, the **post 1913 DJIA** $= \sum \frac{12 \text{ prices}}{\text{divisor}}$

When they increased to 30 stocks, they used a new divisor. Each time a stock split, they adjusted the divisor. As time went on, further splits reduced the divisor to 0.15221633137572 on February 26, 2024.

Thus, on February 26, a $1 increase in any DJIA stock created a 1/0.1522… increase in the DJIA, or 6.5696 points. If another stock splits, they just recalculate the divisor.

The DJIA is a price-weighted index. If one company has a stock valued at $10, and another $100, the $100 company gives ten times the influence over the index than the small company. If both stocks increase 10%, the smaller company will increase $1, and the larger will increase $10, giving ten times the push to the index.

By contrast, the S&P 500 is market cap weighted so:

Company weight $= \frac{\text{Company capitalization}}{\text{Total S\&P capitalization}}$

Assume the capitalization for all S&P500 stocks is $500 billion and that company A has a capitalization of $1 billion (stock price x outstanding shares), and company B has a capitalization of $2 billion.

Company A's weight is 1/500 (0.2%), and company B's different weight is 2/500 (0.4%)

S&P has to rebalance regularly to adjust for the number of shares of each company (which changes the company's capitalization). Stock can be bought back, newly issued, or may be insider stock, not available for public trading.

DJIA 30 constituents August 2024

AMZN	Amazon
AXP	American Express Co
AMGN	Amgen Inc
AAPL	Apple Inc
BA	Boeing Co
CAT	Caterpillar Inc
CSCO	Cisco Systems Inc
CVX	Chevron Corp
GS	Goldman Sachs Group Inc
HD	Home Depot Inc
HON	Honeywell International Inc
IBM	International Business Machines Corp
INTC	Intel Corp
JNJ	Johnson & Johnson
KO	Coca-Cola Co
JPM	JPMorgan Chase & Co
MCD	McDonald's Corp
MMM	3M Co
MRK	Merck & Co Inc
MSFT	Microsoft Corp
NKE	Nike Inc
PG	Procter & Gamble Co
TRV	Travelers Companies Inc
UNH	Unitedhealth Group Inc
CRM	Salesforce Inc
VZ	Verizon Communications Inc
V	Visa Inc
WMT	Walmart Inc
DIS	Walt Disney Co
DOW	Dow Inc

Classification of stocks
These 30 Dow Jones stocks cover eight sectors:

Communication: Verizon, Walt Disney
Consumer staples and discretionary: Home Depot, Walmart, Coke, McDonalds, Amazon
Energy: Chevron
Financials: Amex, Goldman Sachs, JPM, Visa, Travelers, Dow
Healthcare: Amgen, J&J, Merck, United Health Care
Industrials: Caterpillar, Honeywell, Intel, 3M, P&G, Boeing, Nike
IT: Apple, Cisco, IBM, Microsoft, Salesforce

Three further stock sectors in the GICS Global Industry Classification Standard) are **materials, utilities,** and **real estate**. None of these exist in the DJIA stocks at present.

Business cycle, recessions, and depressions
The business cycle is now a normal part of US economic expansion and contraction. Different sectors take part in different parts of the cycles. These cycles last 2-10 years, averaging about 5.5 years. However, the bottom of a business cycle is different from a recession or depression, which involves other factors depressing the economy.

Many define a **recession** as two consecutive quarters of falling real GDP, but economists take a more holistic view.

A **depression** is the same but includes rising unemployment, stock market drops, and bankruptcies. The US National Bureau of Economic Research does not define a depression. Others define it as a GDP decline over 10%, or lasting more than 2 years.

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7

RANKING THE WEALTHIEST AMERICANS

NAME	Dates	$ millions	Year measured	2023 Net worth w/ GDP pc multiplier Millions	2023 Net Worth w/hrly wage multiplier Millions	2024 net wealth w/ share of GDP multiplier PERCENT	Wealth Source	Wealthy 100 1996	Am Heritage 1998	Bernstein Swan 2008	Business Insider 2011	CNN Money 2014	Perplexity (AI site)	Chat GPT (AI site)
JD Rockefeller	1839 1937	1,400	1918	156,111	138,911	1.828	Std Oil	1	1	1	1	1	1	1
C Vanderbilt	1794 1877	105	1877	45,832	34,096	1.238	RR, shipping	2	3	3	3	2	4	4
JJ Astor	1763 1848	20	1848	14,447	10,206	0.8013	Fur/land	3	4	4	5	3		
S Girard	1750 1831	8	1831	8,162	4,763	0.7512	Banking	4	6	5	6	4		
A Carnegie	1835 1919	225	1901	62,045	57,407	0.9812	Steel	5	2	2	2	6	2	2
AT Stewart	1803 1876	50	1876	21,709	16,236	0.5894	Retail	6	7	7	7	8		
F Weyerhaeuser	1834 1914	100	1914	21,942	17,860	0.2715	Lumber	7	8	8	8	9		
J Gould	1836 1892	72	1892	22,779	17,783	0.4255	Finance	8	9	11	9	10		
SV Rensselaer	1764 1839	3,000	1839	Pre-Indust			Land	9			10	7		
M Field	1834 1906	125	1905	28,986	27,906	0.4234	Retail/land	10	10	9	11	11		
H Ford	1836 1947	200	1947	9,425	5,649	0.0801	Autos	11		12		13	3	3
A Mellon	1855 1937	127	1931	16,639	9,144	0.1641	Banking	12						
RB Mellon							Banking	13		6		5		
S Walton	1918 1992	8,600	1992	17,344	19,654	0.1319	Retail	14		10	12	16		
Bill Gates	1955 -	105,000	2024	105,000	105,000	0.3621	Microsoft		5	13	4	12		5
W Buffett	1930 -	142,000	2024	142,000	142,000	0.5071	Investing				13	14		8
E Musk	1971 -	421,000	2024	421,000	421,000	1.557	eCars, Space X							7
J Bezos	1964 -	236,000	2024	236,000	236,000	0.8535	e Commerce							6
WH Vanderbilt	1821 1885	232	1885	90,175	69,059	1.945	RR Shipping							
HC Frick	1821 1885	225	1918	25,089	22,325	0.2939	Steel						7	
M Zuckerberg	1984 -	211,000	2024	211,000	211,000	0.7393	Social media							9
JP Morgan	1837 1913	80	1913	16,084	14,288	0.2024	Finance							

MULTIPLIER CALCULATIONS ON PREVIOUS PAGE

2023 Net worth with GDP per capita multiplier in millions = net worth at valuation date multiplied by 2023 GDP/Valuation date GDP

2023 Net worth with hourly wage multiplier millions = net worth at valuation date multiplied by 2023 hourly wage / Valuation date hourly wage

2023 Net worth with the share of GDP multiplier in millions = net worth at valuation date / GDP at valuation date x 100

TEN MOST WEALTHY PEOPLE OF ALL TIME — HOW TO RANK THEM

- I exclude the pre-capitalist era, when emperors controlled wealth, which passed to the next emperor. This is different from the modern era of personal investment, which often pass to charity.
- CPI is too low a multiplier to make good comparisons with 100 to 200 years ago.
- Percent of GDP may be on the high side for making comparisons.
- Hourly wage multiplier stresses low-wage workers too much.
- GDP per capita wage multiplier come in between that and percent of GDP.

RESULTS OF RANKING USING THESE THREE DIFFERENT SYSTEMS

Rank using GDP pc multiplier

NAME	2023 Net worth w/ GDP pc multiplier in millions
E Musk	421,000
J Bezos	236,000
M Zuckerberg	211,000
JD Rockefeller	156,111
W Buffett	142,000
Bill Gates	105,000
WH Vanderbilt	90,175
A Carnegie	62,045
C Vanderbilt	45,832
M Field	28,986

Rank using hourly wage multiplier

NAME	2023 Net Worth with hourly wage multiplier in millions
E Musk	421,000
J Bezos	236,000
M Zuckerberg	211,000
JD Rockefeller	138,911
W Buffett	135,000
Bill Gates	131,000
WH Vanderbilt	69,059
A Carnegie	57,407
C Vanderbilt	34,096
M Field	27,906

Rank using relative % of GDP

NAME	2024 net wealth w/ share of GDP multiplier PERCENT
WH Vanderbilt	1.945
JD Rockefeller	1.828
E Musk	1.557
C Vanderbilt	1.238
A Carnegie	0.9812
J Bezos	0.8535
JJ Astor	0.8013
S Girard	0.7512
M Zuckerberg	0.7393
AT Stewart	0.5894

FINAL RANKING

Thus the first two rankings weight current billionaires, whereas the third ranking I think weights earlier wealthy industrialists. Taking account also of their rankings on the previous page, I would suggest the following ranking:

1. **JD Rockefeller**
2. **Cornelius Vanderbilt and WH Vanderbilt**
3. **Elon Musk (but his net worth in 2024 was capricious; it varied between $176 and 436 billion. Next year he could drop again!)**
4. **Andrew Carnegie**
5. **JJ Astor**
6. **Stephen Girard**
7. **Jeff Bezos**
8. **Bill Gates (although his numbers look lower, he has already given away $60 billion)**
9. **AT Stewart**
10. **Marshall Field**

OTHER RANKINGS

List of the Richest Americans in History in Wikipedia, includes the richest men of each half decade in history. Some with a decade or more are:

1. Stephen Girard 1805-1835
2. John Jacob Astor 1840-1850
3. Cornelius Vanderbilt 1850-1880 and William Henry Vanderbilt 1880-1890
4. John D Rockefeller 1890-1900 and 1910-1920
5. Andrew Carnegie 1900-1910
6. Andrew Mellon 1930-1940
7. Bill Gates 1995-2020

Ten richest people of all time Money Magazine 2015 in History (but many of these are rulers, not absolute owners)

1. Mansa Musa 1280-1337, King of Timbuktu, largest gold producer
2. Julius Caesar 63 BCE-14 CE, Owned 20% of Roman Empire including all of Egypt $4.6 Trillion
3. Emperor Shenzong of China 1048-1085, ruled an empire with 25-30% of global GDP
4. Emperor Akbar I of India 1542-1605, ruled an empire with 25% of global GDP
5. Joseph Stalin 1878-1953, completely controlled the nation with 9.6% of GDP
6. Andrew Carnegie 1835-1919, $372 million
7. John D. Rockefeller 1839-1937, $341 million controlled 90% of oil production
8. Alan Rufus, nephew of William the Conqueror, died with £11,000 equivalent to $194 billion today
9. Bill Gates 1955-present, $79 billion, since overtaken by others
10. Genghis Khan 1162-1227, owned lots of land, but not much else

8

PUTTING MONEY AND FINANCE INTO BIG HISTORY

This chapter explores how economics fits within the grand narrative of Big History. It will examine the key factors in human evolution and societal organization that have driven economic growth and development.

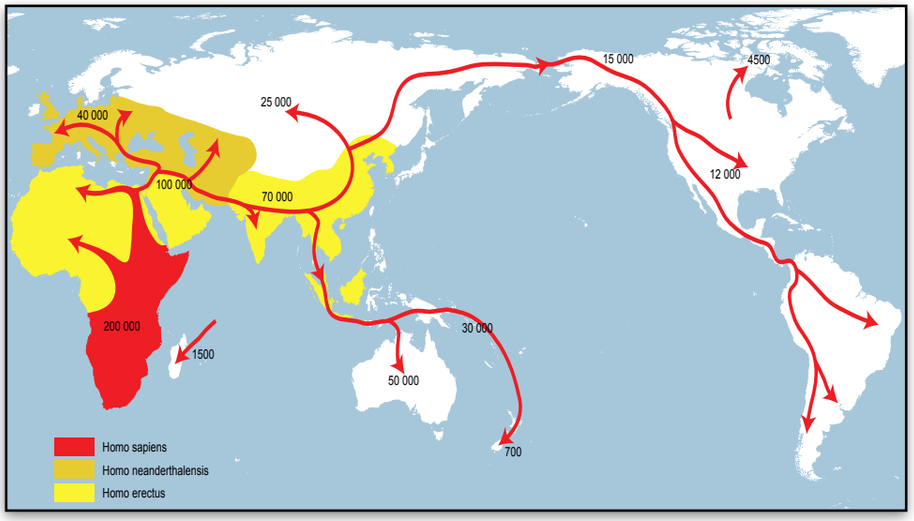
I will deal with human evolution and collective learning, and modern prosperity provided by democratic economies. I will divide this chapter into:

- **A brief history of the earth (Big History)**
- **Collective learning**
- **Starvation**
- **Subsistence, exploitive and generative societies**
- **Roadblocks to progress**
- **Industrialization**
- **Democracy**
- **Money**
- **Inflation**
- **Finance**

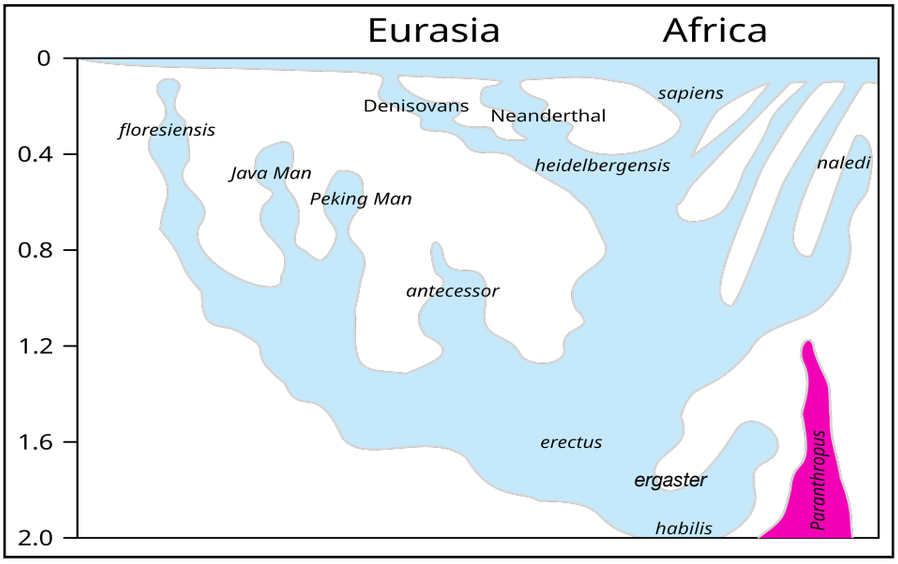
This will explain the answer to these questions.

- Why did humans succeed when apes did not?
- How does humanity fit into Big History?
- What were the most important factors in human evolution?
- What is symbolic collective learning?
- Where do money and stocks fit in?
- What paths had to converge to allow the industrial revolution?
- Why are people richer in developed societies?
- What are subsistence, exploitive, and generative economies? How do these relate to oligarchies and democracies?

Some key concepts are collective learning, the process by which humans learn from each other and, once writing evolved, from others in the past. Another key concept, subsistence, exploitive and generative economies, stresses how societies in times past, either starved, were enslaved to others, or expanded with creativity.



Map of early human migrations, showing Homo sapiens filled the earth, but erectus died out 50-100,000 years ago, and Neanderthals died out 30-40,000 years ago



Homo sapiens evolution over 2 million years, showing interbreeding between Neanderthals and Denisovans in Europe (and unidentified hominins in Africa). Homo habilis evolved from Australopithecus living 4 to 2 mya, in turn evolving from Ardipithecus 4 to 6 mya.

A. BRIEF HISTORY OF HUMANKIND

What were the critical changes in human evolution that led to our science, technology, and commerce?

Here is a concise history of the earth and humankind (see also chart overleaf).

- 13.8 bya*, **big bang** created hydrogen, helium and energy
- 11-12 bya, first supernova created **elements** more complex than hydrogen and helium
- 4.6 bya, **earth** formed as part of solar system
- 4.3 bya, **protocells** with RNA on earth
- 3.5 bya, first **prokaryotes** (no cell nuclei, but DNA)
- 1.5 bya, first **eukaryotes** (cell nuclei and organelles)
- 20 mya*, first **apes**
- 6 mya, first **hominids** (bipedal apes)
- 2 mya, **Homo habilis**
- 250 kya*, **Homo sapiens,** Paleolithic era of hunter-gatherers
- 50 kya, first **speech**
- 10 kya, end of last ice age, **agriculture** starts (Neolithic era)
- 5 kya, first cities and states, first **writing**

*bya means billions of years ago, mya means millions of years ago, kya means thousands of years ago

Evolution of Homo sapiens

Physical anthropology tells us that **bipedalism** improved our ability to see and freed our hand to use tools.

Encephalization (increasing brain size) allowed cognitive expansion, including tool making, social complexity, and speech.

Speech started around 50 kya, but Neanderthal's speech may have been simpler.

Agriculture started around 10 kya, partly from over-hunting large mammals. It also coincided with the end of the last glacial period. Agriculture marked the end of the Paleolithic, and the beginning of the Neolithic era. During a period of global warming, man then started domesticating plants and animals, breeding out the most desirable features. We have been genetically modifying plants and animals for 10,000 years!

Cognitive evolution used collective learning via speech and writing to set the stage for later economic development. But for 97% of the agricultural era, 95% of humanity barely fulfilled the first three needs of Maslow's hierarchy (see below). Even today, millions of people starve.

Subject	Studies	Paradigm	Paradigm Inventor	Date	Important concepts
Cosmology	Universe	Big Bang	Georges Lamaître 1894-1966	13.8 bya	Energy and subatomic particles create only hydrogen, helium, and cosmic background radiation.
Astronomy	Stars	Copernican Revolution	Nicolaus Copernicus 1473-1543	13.5 bya	First stars begin — a nuclear reaction crating helium from hydrogen. Hertzprung-Russell table of stars' luminosity versus temperature classifies stars into main sequence stars, and others (white dwarfs, blue giants, red giants and black holes).
Chemistry And Physics	Elements Forces	Periodic table of elements Newton and gravity Quantum theory Relativity theory	Dmitri Mendeleev 1834-1907 Isaac Newton 1642-1727 Niels Bohr 1885-1962 & Max Planck 1858-1947 Albert Einstein 1875-1955	11-12 bya	First supernova star death creates rest of elements beyond hydrogen and helium, making planets Four forces are: • Electromagnetic • Gravity • Nuclear force • Weak nuclear force
Geology	Earth	Plate tectonics	Alfred Wegener 1880-1930	4.6 bya	Often earth's core supplies energy to move tectonic plates
Biology	Living cells	Natural selection creates evolution	Charles Darwin 1809-1882	3.5 bya	There characteristics of living things, Reproduction, Adaption, Metabolism
Anthropology	Hominid evolution	Collective learning	David Christian 1946-	6 mya	Bipedalism frees hands leading to cephalization then language. **Three eras:** foraging, agrarian, industrial
History	Human events	Writing records events	Herodotus of Helicarnasus ca. 480-425 BCE	5 kya	**Writing** extends collective learning, leads to communication technologies, books, telecomm, now IT and AI **3 Social Constructs:** **Money** leads to capitalism and economic system **Religion and Governmaent** leading to cities, states, and democracy **Social Institutions: a.** rule of law and human rights **b.** Education and development of scientific method

The Seven Stages of Big History

B. STARVATION

Maslow's motivational theory postulated five tiers of human needs. Humans must fulfill lower level basic needs before higher needs. Even today, few reach the apex of self-actualization. The needs are:

Physical food, water, and shelter, e.g., Paleolithic and Neolithic man.

Security from attack (and illness), raising issues of fire, dogs, villages, cities, and medicine

Affiliation needs, sex, feeling of belonging, relationships, affection, e.g., marriage, tribes and religion

Esteem, self worth and achievement

Self actualization, e.g., finding meaning to life, transcendental change, religion, philosophy, learning, charity.

For most of agricultural history, most people have been in a state of starvation. Unfortunately, internet searches show no exact figures for malnutrition today, obfuscated by five phases of loosely defined "food insecurity". Over 3 million die yearly from starvation, and around 300 million suffer chronic malnutrition (phase 3, 4, and 5 food insecurity). Nobel laureate Amartya Sen said no substantial famine has ever occurred in a democratic country with a relatively free press.

Malthus and population growth

Thomas Malthus, an English political economist and demographer, said that before 1700, average income seldom rose much over subsistence existence. If any extra wealth appeared, extra food led to more surviving children, leading to even more subsistence living within a few generations. What dug Homo sapiens out of this mess? Collective learning — but it took a long time, and has only succeeded in the last few hundred years.

C. COLLECTIVE LEARNING

Why Homo sapiens succeeded when others did not

The short answer to why human society has developed science, technology and commerce is collective learning. That is the process by which a group of people share and accumulate knowledge over time, using language or symbols (writing).

Sir Isaac Newton uttered the now common metaphor expressing collective learning. "If I have seen further, it is by standing on ye shoulders of giants." Today we say, "We stand on the shoulders of those who came before us."

Chimpanzees share 98.8% of the genes of humans. But what is the biggest difference? Collective learning. If a chimpanzee is a stand-alone computer, a human is the internet. Chimpanzees cannot talk, so can only learn by themselves. But Homo sapiens can interact and learn from each other by language and writing.

As a physician, I made complex decisions about complex matters. This was not because I figured it out for myself, but because over centuries, collective learning led to medical schools and residencies.

Symbolic collective learning (writing)

The first documented city (Çatalhöyük in Turkey) started around 7000 BCE. But around 4000 to 3000 BCE, multiple cites started in Mesopotamia, the same time as symbolic collective learning (**writing**) started. They used early writing (cuneiform and hieroglyphic) for record keeping rather than communicating complex ideas. But religion soon followed, requiring more sophisticated symbols. It is only because of writing that we have sapiens dating from this period. Before then, one could only rely on hearsay.

Cities, organized warfare, monumental building, and tribute taking states started around the same time as writing, i.e. 3000 BCE.

Specialization

When cities appeared, society likely needed nine peasant farmers to support each city dweller. City dwellers were specialists like soldiers, potters, bronze smiths, priests, scribes, bakers, masons, administrators and nobles. We cannot all learn everything, and specialization is an important part of collective learning.

The Islamic world and numeracy

Baghdad, Cairo and Córdoba in the Islamic world became centers of learning from 700 CE on. Islamic centers made advancements in mathematics, optics, astronomy, and medicine.

"Arabic cypher" meant Arabic numerals, which spread slowly from centers of learning like Islamic Spain from the 1000s to the 1400s. It took that long for Europe to drop

Roman numerals. This meant that even literate Europeans were not numerate until the 1400s. They had to use a professional rechenmeister to do almost all Roman numeral accounting functions.

Numeracy in 1000 CE was likely well below 1%, even in men. It rose until 1500, though still likely confined to the elite, such as clergy, nobility, and merchants. As the need for money increased, especially among non-farmers, numeracy rose, but percentages are not available. We know, however, that with the industrial revolution, the need for numeracy and literacy increased. Thus, in the 1800s, most children went to school where they learnt the three r's, reading, writing, and arithmetic. Before that, education was reserved for the elite.

Literacy (as opposed to numeracy) was 10% in 1500 among men, but <1% among women. It rose to the 25% level in the 1600 and 1700s. By the mid 1800s, 62% of Europeans were literate. These tools for society to develop are so obvious today, but in ancient times, most societies were illiterate and innumerate subsistence economies.

D. SUBSISTENCE, EXPLOITIVE AND GENERATIVE ECONOMIES

Subsistence, exploitive and generative economies

Activities in ancient societies could be subsistence, exploitive, or generative. A **subsistence economy** meant there was little middle class, and well over 90% of society lived hand to mouth. This was typical of most societies until the end of the middle ages.

An **exploitive economy** meant tribal conflicts, leading to slavery, tribute taking, and economic manipulation. In ancient times, religious leaders, intellectuals, and nobles took advantage of farmers by consuming their excess grain. In the modern era, we still see this in autocratic countries like North Korea, Maoist China, communist Russia, and Africa.

Why have so many African countries been a basket case? Because they are exploitive economies — corruption, oligarchical elite control of resources, political instability, civil war, poor economic policies, poor infrastructure, and poor education and health are all rife. China's crippling loans threaten to control their resources for generations, further delaying their economic development.

In 1960, world GDP per capita was $3,600, versus Africa's $1,320. The world was doing 2.7 times better than the average African country. In 2024, that figure is eight times ($13,900 versus $1,740).

Generative economies used money for commerce and created laws to encourage corporations and financing them. They also embrace novel forms of energy. Historically, energies have been human, animal, water power, steam power, electricity, internal combustion engine, nuclear, and green power. Without power, industry would be crippled.

Another lesson is that each technology tends to form a substrate for the next technology — without electricity we would have no computers.

Generative economies also supported human organizations like guilds, laws on property rights, corporations, banking, and universities.

Why are people richer in developed societies?

Because they use less exploitive, and more generational activities.

What produces generative technologies? Education, widespread symbolic collective learning (once printing, now the internet), using cheap power sources, and interlinked human organizations including government, law, banking, medicine, and modern democracy. So, what prevented societies from developing for so long?

E. ROADBLOCKS TO PROGRESS

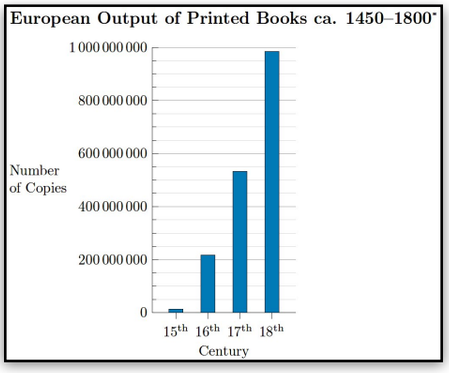
Why symbolic collective learning stumbled

Why did symbolic collective learning not move humanity faster to the modern era of science, technology, and commerce? Firstly, endemic warfare got in the way, and secondly, the dissemination of symbolic learning did not become widespread until printing was invented.

Endemic warfare swamped people in ancient times. Feudalism and Roman Catholicism then fueled the dark ages, still encouraging endemic warfare in subsistent populations.

Then Martin Luther nailed his theses to his church door in 1517, sparking the Reformation. This encouraged non-theocentric logic.

With these factors in place, Gutenberg's 1436 printing press later catapulted symbolic collective learning at a pace hitherto unrivaled. Suddenly, books in Europe increased from about 15 million in the 1400s to 200 million in the 1500s (when their population was only 78 million). From 1440 to 1500, from Gutenberg's shop in Mainz, 282 printing presses spread all over Europe.



Exponential increase in printed books

Thus, collective learning progressed from speech, including specialized professions, then writing, then printing. Things were beginning to come together for societies to advance further from what the philosopher Thomas Hobbes described. He said life without a strong government was, "Solitary, poor, nasty, brutish, and short".

When a Catholic Emperor Ferdinand II forced Catholicism on Protestants, the Thirty Years War started in 1618. It grew to involve France, Spain, Sweden and the Netherlands. The war killed 4.5 to 8 million people!

But the 1648 Treaty of Westphalia which followed had an unexpected benefit. It laid the foundations of the modern nation-state. Each state could govern itself without outside interference (including from the Roman Catholic Church). Each state was legally equal and had a defined border. The rise of nation states discouraged endemic warfare.

F. INDUSTRIALIZATION

Paths converge for industrialization

In the 1700s, many paths joined, allowing progress:

- Significant numbers living above subsistence levels
- Widespread symbolic collective learning from book printing
- The end of endemic warfare under feudal lords and Catholics and the rise of nation-states
- The Reformation, liberating thought from religious authority and theocentric explanations, opening up science
- A long tradition of bullion currency for commerce
- Human organizations like banking, laws, and educational and research institutions, which encouraged the link between scientific development and marketable technology.
- In the late 1700s, America and France became the first modern democracies, followed by the UK in 1832 (more about this later).

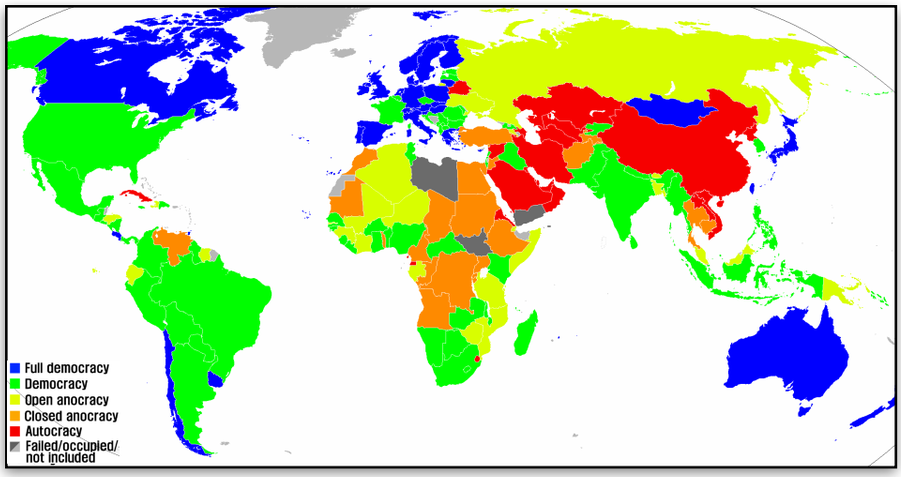
Industrial Revolution

We now come to the industrial revolution, encompassing science and commerce. It started chiefly in Birmingham, UK, in the 1770s with James Watt's improvements to the steam engine. Previously used as a pump to get water out of mines, Watt changed it to a rotary engine. This could drive other machines, including railway engines, steamships, and factory machinery.

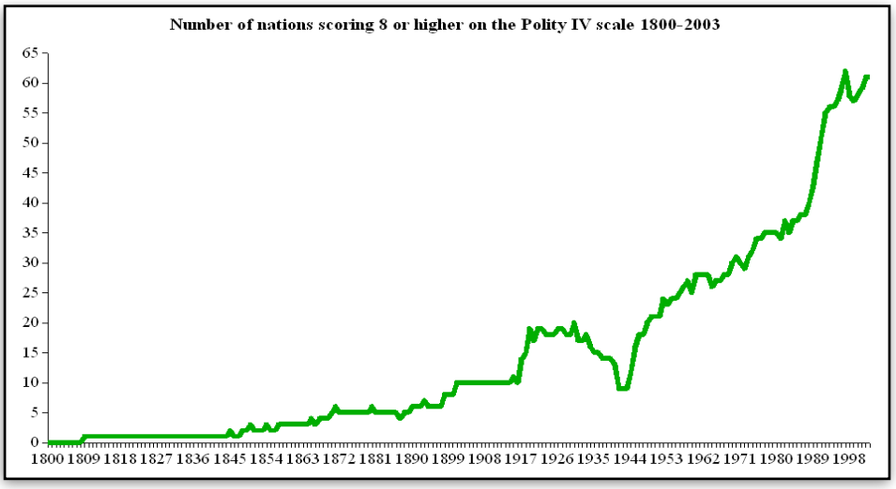
English textile machine inventions expanded textile production. In addition, advances in iron and steel production allowed for the needed machinery that drove industry. Britain had rich sources of coal and iron — primary drivers of the industrial revolution. They also developed a transportation infrastructure, at first with canals, then later with railroads.

Banking and capitalism allowed backing for British entrepreneurs who embraced new technologies. The British legal system protected private property and started a patent system to protect intellectual property.

Other countries soon followed, especially the United States. Generative activities included energy sources, education and human capital to increase productivity, and embracing technological advances. Commerce further enhanced the process. The industrial revolution was a boon to humanity, but did not solve the problem of the greatest good for the greatest number. That was called democracy.



Countries in the world scored according to democracy.



Above, gradual development of democracy since 1800.

G. EVOLUTION OF DEMOCRACY

Human organizations

Human organizations became important and nation-states passed laws to protect them. Banking laws, private property laws, and patent laws all created settings conducive to industrial expansion. Corporations had a legal existence and used what the British called merchant banks to raise capital. In the US, we call them investment banks.

Ancient Athenians practiced democracy, but not how we think of it. It was a democracy for perhaps 10-20% of the population, which demanded an almost full-time direct participation. Most members had slaves to do all their work for them. Modern democracy is representative. We elect representatives who do the work for us, so we can remain gainfully employed.

Of the US population of 345 million, 245 million are eligible to vote. Of those, only 152 million actually voted in the 2024 US presidential election.

Those not eligible to register include children under 18, non-citizens, people with intellectual disability, and felons. People may choose not to register because they dislike politics, think they will not make a difference, or other reasons. About a half of 18-24-year-olds register to vote, and three-quarters of those over 55 register to vote.

The multiplying effect of democracy

Research shows economies with democratic traditions (as opposed to autocratic/oligarchic) do much better. Although in the short term, autocrats can get things done quicker without democratic red tape, democracies outperform in the long term.

Daron Acemoglu, James Robinson, and Simon Johnson have pioneered much of this research using econometrics to study how institutions affect prosperity. The three won the Nobel Prize for Economics in 2024.

Democratic leaders face institutional constraints leading to enrichment of all society, not just elites. Broad-based consumer spending and investment drive economic expansion and increasing standards of living much more than oligarchies.

Democracies (as opposed to oligarchies) generate:

- More sustained economic growth and political stability, leading to increasing standards of living
- Better policy making, which favors the public rather than elite interests
- Greater accountability
- Increased public goods investment like education and healthcare, which in turn lead to greater productivity. Elites prefer privilege over public goods.
- Higher quality infrastructure
- Higher income equality with social safety nets and more progressive taxation, which can foster political stability, creating more favorable investment conditions.
- More social welfare, less starvation, and more progressive taxation
- Democracies, with their higher development of human capital, foster innovation by protecting property rights

For these reasons, the 2024 US presidential elections created much concern over the threat to democracy and the free press.

The map to the left grades countries according to democracy, anocracy (part democracy and part dictatorship), and pure autocracy.

H. MONETARY SOCIETY

Money

Around 3,000 BCE, they used barley as money. One grain weighed around 65 mg, a weight still used today. Around 3,200 BCE, the mina, a Semitic word for "to count," first appeared in Mesopotamia as a unit of weight (around 500 grams). They also divided a mina into 60 shekels, and created a talent of 60 mina, usually used to measure silver.

Babylon used a sexagesimal system based on the number 60. We still use 60 seconds to a minute, and 60 minutes to an hour or a degree of arc.

Western States used silver by weight called hacksilver starting around 2000 BCE. Lydia issued coins first around 650 BCE.

Money, like religion, beauty, countries, social classes, and measurements, are not universal truths. These ideas are all social constructs — ideas that humans have decided to agree upon in various places, societies, and times. Almost all nations have accepted bullion, then later, government-issued token currency. Most societies value gold, but cryptocurrency, still the emperor's new clothes, has not yet achieved universal status as a social construct.

There are three ways to acquire property. **Tribute** taking states take goods, services and money by force. **Gifts** represent goods, services or money given freely. **Profit** means goods, services, or money exchanged in a competitive market.

Where do money and stocks fit into the history of humankind?

In ancient times, such commerce was limited to soldiers, priests, merchants, and states. Over time, subsistence farmers have not needed money. They got the vast majority of what they needed from their farm, home manufacturing and occasional barter. The modern commercial system came of age when most people became wage earners rather than independent farmers.

Percentage of farmers in US

1700s 80%	1920 30%
1780 95%	1940 17%
1800 90%	1950 15%
1850 64%	1960 6%
1870 <50%	1970 3%
1880 46%	2024 1%
1900 40%	

Subject	2 Mya	10 Kya	3000 BCE	1000 BCE	1 BCE	1000 CE	1500 CE	1800 CE	1900 CE
Masonry	Paleolithic era 2.5 Mya, foraging, hunting implements	Neolithic = agriculture Farming implements. 10-6 Kya first Monoliths	3000 BCE Egypt used form of concrete		Rome concrete			Late 1800s reinforced concrete 1874 Otis installs 1st elevator 1880s First skyscrapers	
Money	Gifts, stealing, exchange in foraging existence (Paleolithic)	4500 BCE gold jewelry	2-3000 BCE silver valued by weight. Barley grain used as money Mesopotamia	650 BCE first coins in West 900 BCE coins in China		1000s CE First paper money in China in Song Dynasty	1200-1400 Double entry bookkeeping, North Italy Late 1600s paper money in West starts. 1606 VOE first stock certificate	1700s Fractional reserve banking started. 1800s Fights over bimetallism & gold standard.	1950s Diners club Credit cards 1980s Electronic banking
Commun -ication	70 - 200 Kya speech started.		3000 BCE Cuneiform script Mesopotamia 2900 BCE papyrus started 2500 BCE parchment		104 Cai Lun invents paper 700s paper to Arabia 1000s paper to Europe		1450 Printing Gutenberg starts movable type	Telecomm, 1838 Morse telegraph 1876 telephone Bell 1896 radio Marconi	WW2 Colossus cmputer Alan Turing. 1980s home computers accelerate. 2020s artificial intelligence
Collective Learning	Foragers (Paleolithic)	Agriculture (Neolithic)	Written history supersedes oral history. Initial writing for accounting only.	500 BCE education starts ancient Greece	104 CE paper invented	700s paper displaced papyrus 1000 paper replaced parchment in Europe 1000 Universities	1543 Copernican revolution = we are solar centric. Scientific Rev. begins. 1620 Francis Bacon writes on scientific method	Scientific/tech revolution accelerates 1800s universal childhood education starts	Increasing university education for masses 38% US adults have bachelors degrees
Metals	None	8.4 Kya lead isolated 5 Kya tin isolated	4500 BCE Gold jewelry 3000-1200 BCE Bronze Age 3000 BCE Silver by wt. as money 1500 BCE mercury isolated 3000 BCE antimony vase known	1200 BCE Iron Age including steel 650 BCE first coins in West Au, Ag, Hg, Pb, Sn, Cu, Fe all isolated (called 7 alchemist's metals)			1746, Marggraf isolated zinc. 1751 Cronstedt isolated nickel	1856 Bessemer process mass produces steel	Metallurgy science yields many specialties
Govern- ment	Tribal leaders	Village elders in agricultural villages	First true cities, specialization, rulers, nobles, war lords, priests, scribes	500 BCE Athenian democracy was only for the elite			1500s Martin Luther starts Protestantism, Christianity looses control over government	1775 Industrial Revolution in UK 1825 steam power drives industry Late 1700s democracy. 1800 nationalism	1948 UN declaration of Human rights
Warfare	Tribal conflicts 60 Mya Bow & arrow 30 Kya Stone axes		First true cities, with military armies and cavalries	800 BCE saddle 500 BCE Persia first navy	200 CE stirrup	800 CE Gunpowder invented in China during Tang Dynasty	1200s Gunpowder spread to Europe. Guns gradually replaced bows	1790 Napoleon artillery dominant 1861 US Civil War first modern war trains for food & troops, telegraph.	WWI Tanks WW II Aircraft & Nuclear 2000s drones
Plants & Animals	20 Kya dogs domesticated	12 Kya plants domesticated 10 Kya cows, cats sheep, goats 7 Kya donkeys domesticated	3000 BCE horses domesticated	400 BCE horses bred for cavalry, previously pulled chariots					1990s Genetically modified foods speed up process of domestication
Transport & Other	1.7-2 Mya fire by Homo species. Gave light, warmth, tools, cooking, and protection from predators, 30Kya Pottery	7 Kya donkey beast of burden 6 Kya Oxen beast of burden 5 Kya horse beast of burden	3000 BCE wheel in Sumeria. 3000 BCE Minoans celestial navign.		200 BCE Compass China	1200 CE Compass to Europe	1698 Thomas Savery Steam engine to pump out mines 1764 James Watt improvement drove factories	1807 Fulton paddle steamer. 1830 Stephenson steam locomotive 1864 Otto internal combustn engine 1886 Benz first auto with ICE 1893 Diesel engine	1903 Wright flyer 1939 Henkel jet 1951 Idaho first nuclear plant.
Medicine				460-375 BCE Hippocratic oath			1543 Vesalius anatomy book 1628 Harvey physiology book 1670s Leeuwenhoek microscope shows microbes 1796 Jenner smallpox vaccine	1846 Morton ether anesthesia 1861 Pasteur shows microbes cause disease. 1860s Lister developed antiseptic then aseptic surgery 1895 Röntgen XRay	1921 Banting & Best Insulin 1928 Flemming penicillinMade 1940 1950s Pincus contraceptive pill 1954 Murray & Hume organ transplant (kidney)

Progression of ideas in big history

This list shows internet quotes of percentages of farmers rather than wage earners in the US. Around 1870, the majority became wage earners, forcing greater use of money in society.

How companies got money

Starting in the 1600s, companies raised money by selling stock in their company, or by issuing bonds. The resulting paper trail creates a rich history of industry.

The constraint of insufficient specie led to paper money in the West which started in the late 1600s. But it was not until the 1800s that paper money significantly expanded the money supply, helping industrial investment.

- In the US, hard currency in circulation totals $2.4 trillion.
- The M1 money supply is physical currency and demand deposits like checking accounts. It totals $18 trillion.
- M2 includes M1, savings accounts, small CDs, and money market funds, all in digital form. It totals $21 trillion.
- M3 includes M2 and large CDs, Eurodollars and repurchase agreements, but is no longer reported by the government.
- US GDP was $28 trillion in 2024
- Total value of US stock markets was $46 trillion in 2024.
- Total net worth of all US households in 2023 was $153 trillion.
- Total assets of the US federal government in 2024 were $5 trillion, but her liabilities were $43 trillion.

Thus, hard currency comprises only 10% of the money supply. The rest is digital or electronic money, including bank deposits. But it was not always that way. The modern financial system has come a long way since ancient times, supporting huge interconnected markets. But the threat of inflation still hovers over us.

Is poverty an issue today?

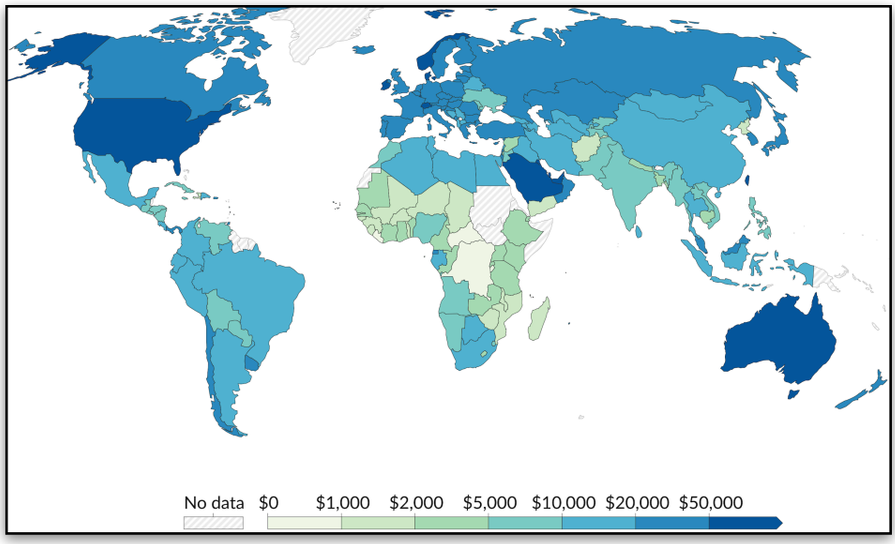
Democracy and our collective learning have provided us with the greatest good for the greatest number. In more developed societies

today, humans typically starve or have no roof over their heads only because of mental illness or addiction, rather than from insufficient social welfare. But in times past, starvation was common. And still today, up to 5% of the world's population starve because they live in less developed countries. The map opposite shows the severe differences between more and less developed countries.

Money in 300 BCE Greece

One drachm = 4.3 grams of silver

50 liters barley	3 drachms
50 liters wheat	6 drachms
Horse	500 drachms
Infantry pay	½-1 drachm a day
Cavalry pay	2 drachms a day
Unskilled laborer	½ drachm a day
Skilled laborer	2 drachms a day



Map of GDP per capita expressed at 2011 prices, using a combination of 2011 prices and 1990 purchasing power parity. Courtesy ourworldindata.org

I. INFLATION

From 1150 to 1520, inflation ran at about 0.15% a year in England. And wages changed little (see the cost of farm labor in England in the chart below).

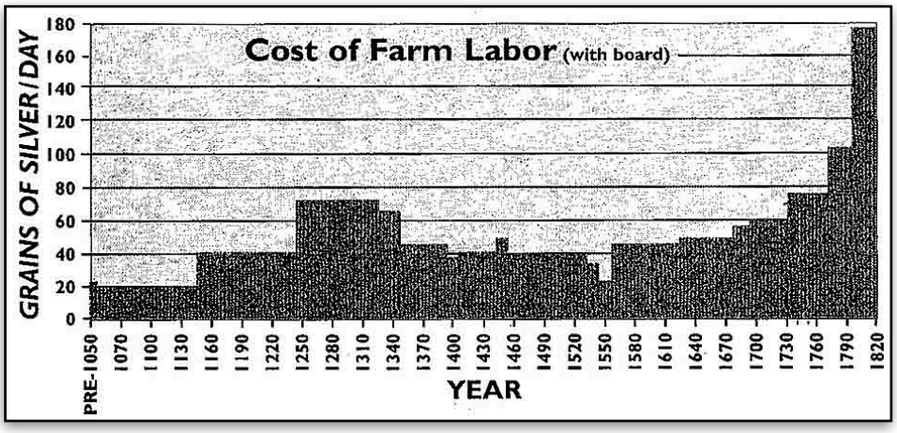
During the Columbian exchange (1500-1900), Spanish America produced 85,000 to 150,000 tons of silver (3.1-5.5 billion pesos). One-third of this ended up in China.

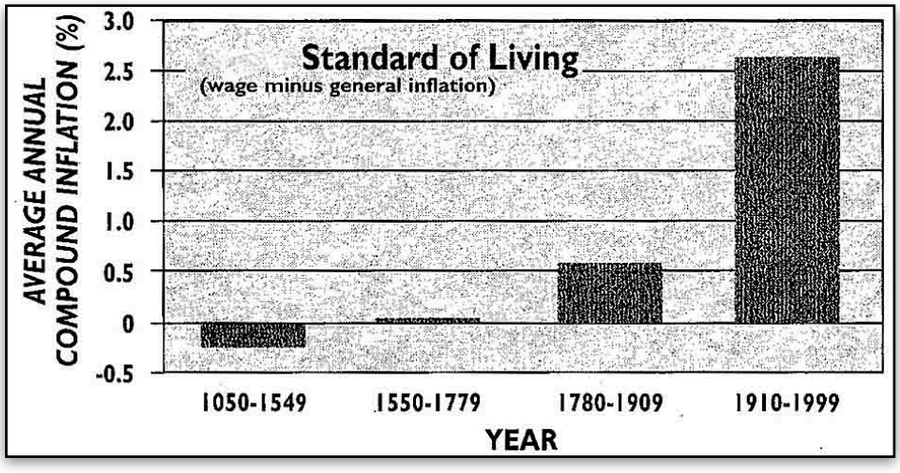
The increased availability of bullion in Europe led to the "Price Revolution," a period of inflation of 1 - 1.5% a year from 1500 to 1650 (see Cost of Farm Labor in England). In 1520, the cost of English farm labor per day was 2.6 grams of silver, the same as in 1160. But from 1560 to 1820, it increased from 2.9 grams to 11.3 grams a day. After 1910, inflation increased again to an average of 3.5%.

How do we figure standard of living increases? The answer is wages minus inflation (see Standard of Living chart below). From 1066 to 1780, the standard of living (measured as wages minus inflation) remained pretty fixed. But 1780 to 1909 saw standards of living increase 0.6% a year. And after 1909, standards of living increased to 2.6% a year. That does not sound like much, but over 115 years it means more than a 20-fold increase — yielding a markedly higher standard of living today.

In 1790, US GDP per capita was $49. Today, in 2024, it is around $85,000. But this is useless information — we need to figure in inflation. A retrospective consumer price index shows the change from 1790 to the present to be $1,266 to $68,224, suggesting a 54-fold standard of living increase! Whether it is really 54 fold is not the issue. Be it a hundredfold or tenfold, the point is that today in America, we are enormously privileged.

But this is only the start. We may be 50 times richer. But we have computers, cell phones, televisions, automobiles, planes, medicine, public health, and so many more things that enhance our lives. Even in 1900, people had none of these things. They might have described it as a nirvana like existence!





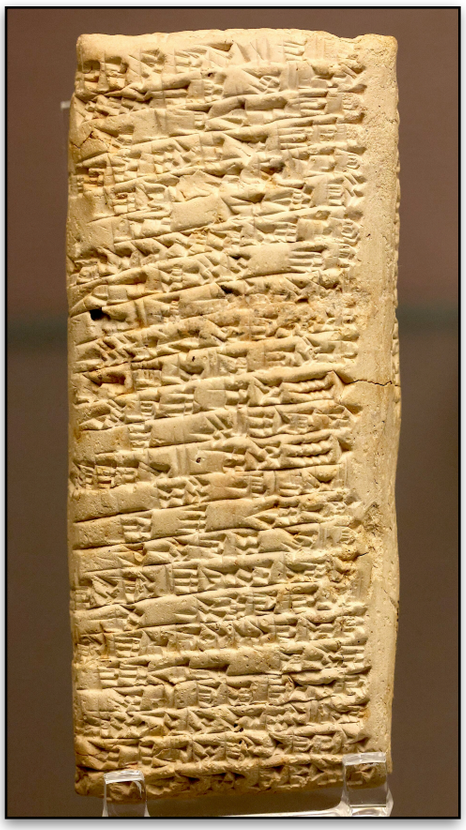
J. THE EVOLUTION OF FINANCE

Finance has grown alongside the development of money, which evolved through the following stages:

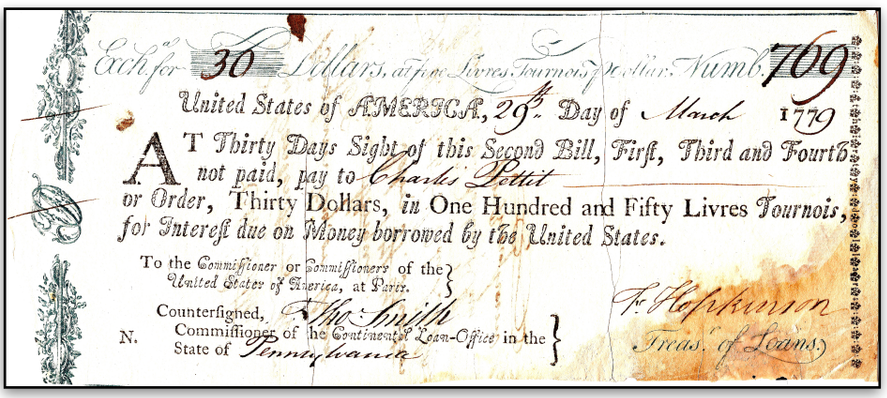
1. **Gift exchange:** Gifts were given with the expectation of receiving something in return.
2. **Private barter:** Goods and services were directly traded between individuals.
3. **Organized exchange:** This began in Mesopotamian temples and palaces, where goods were stored for trade.
4. **Commodities:** Barley and other staples became early forms of money.
5. **Hacksilver:** Small pieces of silver used as currency.
6. **Bullion coins:** Standardized metal coins used for trade. Low value coins were often government issued tokens.
7. **Paper money:** Introduced in China in the 1000s and in Europe in the 1600s.
8. **Money substitutes:** Innovations like checks and credit cards.
9. **Electronic money:** The modern digital form of currency which comprises over 90% of US currency today.

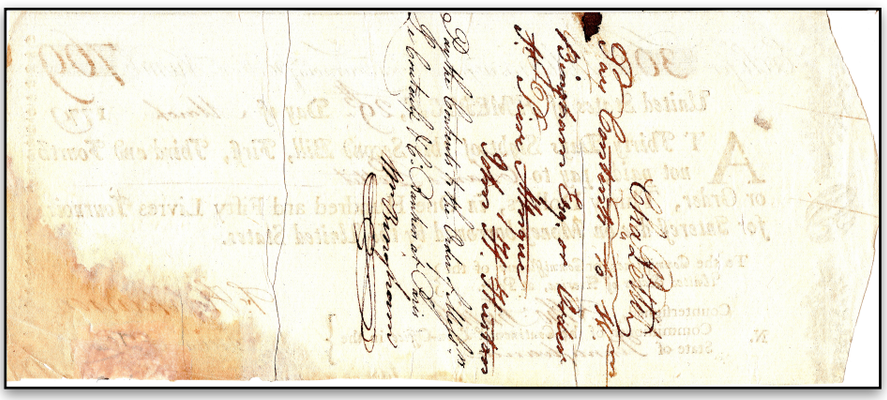
Writing and Signatures in Finance

Finance required written agreements and signatures. Writing surfaces evolved over time:



In 1750 BCE, Ea-nāsir, a trader, sold sub-standard copper to a customer named Nanni, who issued this complaint to the city-state of Ur on this cuneiform clay tablet.





American Revolutionary War Bill of Exchange, this pays interest on money US borrowed from France, signed by Frances Hopkinson, Treasurer of Loans for the Continental Congress. Anderson US97-10A. Back shows endorsement to William Bingham, who endorsed it to Paris bankers (see next page for details) #1499

Medieval Tally Stick

- **Clay tablets:** used in Sumer from 3000 BCE, with cylindrical seals serving as signatures
- **Papyrus:** widely used from 2900 BCE to 1100 CE
- **Animal skins:** used for documents from 2500 BCE to 1100 CE
- **Paper:** invented in China around 300 BCE, improved by Ts'ai Lun in 105 CE with pulp and hemp. Paper reached Europe around 1100 CE
- **Computerized documents:** began in the 1970s

Early Legal Agreements

Key legal agreements in finance included:

- **Loan contracts:** documenting terms for borrowing money or goods
- **Futures and insurance contracts:** early versions of modern financial instruments
- **Negotiability:** transferring asset ownership easily
- **Corporations:** legal entities with rights similar to individuals

Fibonacci (1170–1240) helped introduce Arabic numerals to Europe and wrote a treatise covering finance-related topics like algebra, bartering, partnerships, and coin alloys. Figuring advanced mathematical concepts in Roman numerals was near impossible. He credited **Al-Khwarizmi** (780–850 CE), a Muslim astronomer from Baghdad, for his work on algebra and algorithms.

Loan contracts

The first documented loan, around 2350 BCE in Sumer, recorded the borrowing of five shekels of silver and 900 sila of barley. By 1820 BCE, cuneiform contracts included interest rates, such as 1 ⅙ shekels of silver with regular payments.

In 1750 BCE, the **Code of Hammurabi** regulated loans and interest rates. Borrowers paid 20% annual interest on silver and 33% on barley. Loans were typically short term, tied to agricultural cycles.

Roman Catholics opposed interest (called usury) because of their interpretation of quotes in the Old Testament. Jewish interpretation of the same passages in their Torah was different, allowing them to lend money with interest. Around 1517-1650, the Protestant Reformation allowed Protestants a more realistic attitude to the time value of money.

Corporations and Legal Personhood

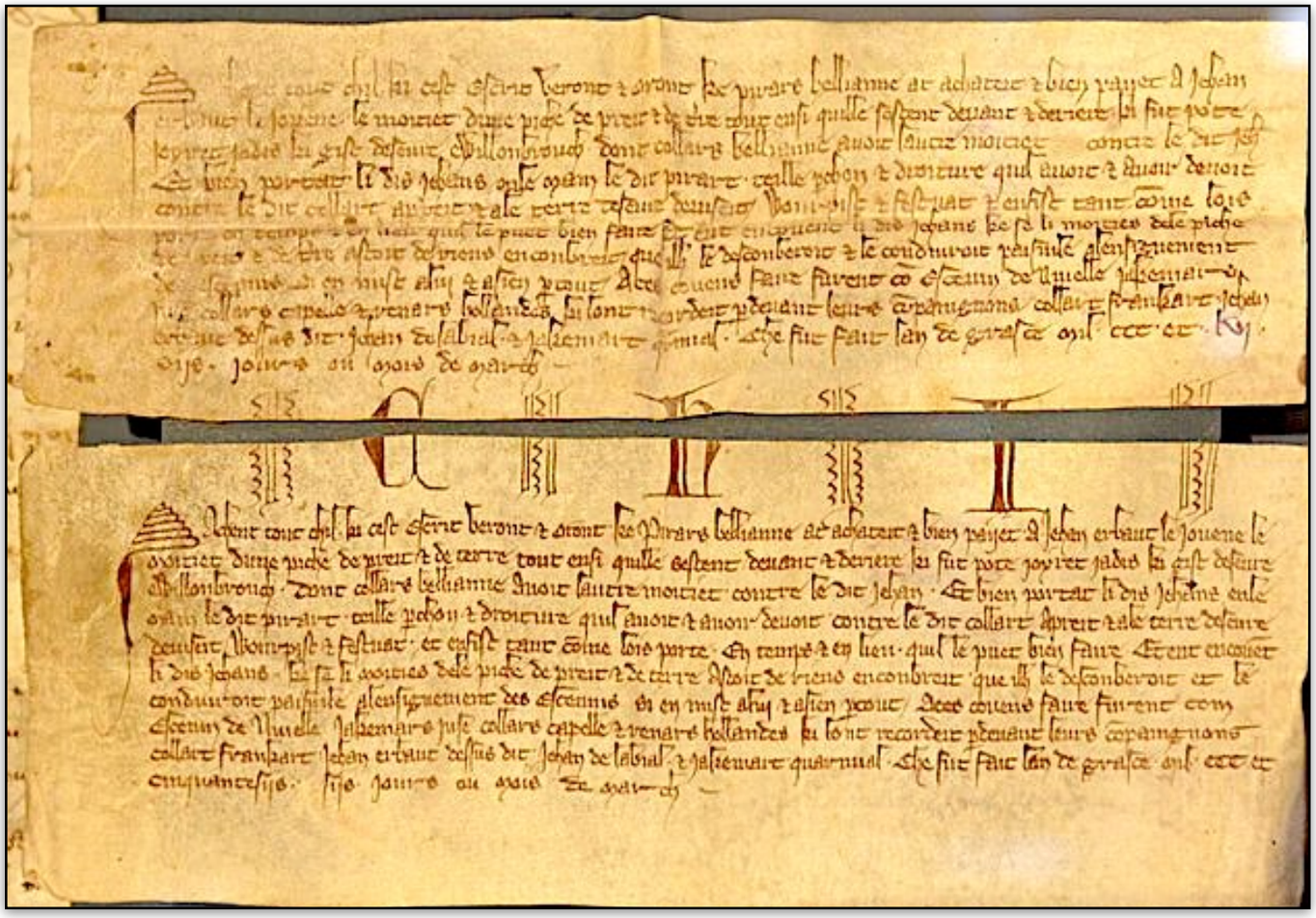
A corporation is a legal entity separate from its owners, able to sue, be sued, and enter contracts. The concept dates back to:

- **Shreni (800 BCE, India):** associations of traders, artisans, and merchants
- **Rome (400 BCE):** they granted legal personhood to municipalities, public works, and religious societies (collegia). These ideas later influenced medieval guilds and the Catholic Church.
- The **Dutch East India Company (VOC)**, established in 1602, is considered the first modern corporation.

Negotiable Instruments

Negotiable instruments promise payment at a future date. Examples include:

- **Tally sticks (1200s, England):** sticks were notched to record debts, split into halves for the creditor and debtor. They could even substitute for cash (above left).



Chirograph with non-wavy line through CHI…, the word chirograph came from χείρ (kheír, "hand") and γράφω (gráphō, "write") meaning: hand and write. Some say incorrectly Chiro meant Christ, i.e., I swear on the blood of Christ when writing the document.

- **Bills of Exchange:** an instruction to pay a sum from a distant bank. In Rome, around 10% of long ship voyages sank. Thus, ships sold and bought goods using a type of bill of exchange on banks around the Mediterranean. Trans-Atlantic travelers and men returning from the Californian Gold Rush used similar drafts (see previous page) to send money across long distances safely without having to carry them in person.
- **Chirographs (1200s, England):** identical contract texts were written on parchment, divided by a wavy line, ensuring authenticity. Similar methods appeared earlier on papyrus in 252 CE (see above).

Futures, Options, and Insurance

- **Futures and options** first appeared with the VOC during the 1600s.
- **Futures contracts:** an obligation to buy or sell an asset at a specific price on a future date, useful for commodities.
- **Options:** the right, but not the obligation, to buy or sell an asset within a specific timeframe.
- **Marine insurance** was known in ancient Rome to protect against shipwreck losses.
- The first **annuity** (also called reverse life insurance), paying steady income until death, was issued in Rome in 205 BCE. By contrast, **Tontines** pay group annuities, effectively paying increasing amounts to members of a group until the last person dies. Annuities continued during the Middle Ages, especially where church-imposed usury laws were enforced, to evade loans paying interest.
- **Life insurance** pays money to a beneficiary after someone dies. It also started in ancient Rome when soldiers contributed to burial clubs to help pay funeral costs. Modern life insurance started in England in the 1600s. In 1693, **Edmund Halley**, the Astronomer Royal, created one of the first actuarial tables to calculate life insurance and annuities.

Financial Instruments and Innovations

- **Inflation-indexed bonds:** first appeared during the American Revolutionary War in 1780.
- **Mutual funds:** first introduced in 1774 by the Dutchman, Abraham van Ketwich, allowing small investors to pool resources and diversify risks. Obviously, this was not the sophistication of modern financial diversification, but a start.
- **Eurobonds:** financial historian Niall Ferguson credits the Rothschild bond as the first Eurobond. A Eurobond is a bond issued in foreign currency.

CONCLUSION

This overview of economics, big history, and finance underscores the cumulative impact of collective learning, societal structure, and technological innovation in shaping humanity's journey towards quality of life. Today, democratic and generative systems emerge as the most sustainable to foster widespread prosperity for humanity.

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9

US GDP, POPULATION, GDP pc, CPI, LABOR COSTS, SILVER:GOLD RATIO, $ to the £, INFLATION, & DJIA

This chapter lists:

- **US GDP 1789-2023 graph**
- **Log US GDP 1789-2023 graph**
- **US Population 1789-2024 graph**
- **Log US Population 1789-2024 graph**
- **A main table of US GDP, US Population, GDP per capita, CPI Labor costs, Gold prices, Gold to silver ratio, US dollar to UK pound exchange rate, inflation, and DJIA. The information covers mostly from 1774 to the present and includes the London market price of gold since 1257.**
- **Nominal GDP per capita in current dollars 1789-2023 graph**
- **Log nominal GDP per capita in current dollars 1789-2023 graph**
- **CPI 1774-2024 graph**
- **Log CPI 1774-2023 graph**
- **Hourly wage production for workers in $, 1789-2023 graph**
- **Log hourly wage production for workers in $, 1789-2023 graph**
- **New York market gold price in $ per ounce 1789-2023 graph**
- **Log New York market Gold price in $ per ounce graph**
- **Ratio of value of ounces of silver to ounces of gold 1774-2023 graph**
- **Yearly inflation rate in % 1774-2023 graph**
- **Dow Jones Industrial Average % returns or losses 1887-2023 graph (pre 1896 they show the DJ transport average rather than the DJIA)**
- **DJIA 1896-2023 graph**
- **Log DJIA 1896-2023 graph**

I often see comparisons of what things cost 100 or 200 years ago, which include ridiculous equivalents today.

The problem is which inflation index should be used to depict the accurate value of an item in times past.

For example, I asked ChatGPT how much a horse cost in 1800. They quoted a basic workhorse as costing $50-$75, which they said was equivalent to "over $1,000" today (i.e., a multiplying factor of 20 times).

Well, in 1800, GDP per capita was $92 per year. So, a horse back then cost half or more of a year's income for the average American. How can you say that horse only represents a value of $1,000 today? Today, with a GDP per capita of around $85,000, $1,000 is just 1.5% of average earnings! Authorities can be off by orders of magnitude.

Therefore, I have listed these tables to use. Here are my suggestions:

To compare costs from last year to this year, use CPI.

To compare costs during your lifetime, use income for your position. For example, were automobiles cheap in 1980? To examine this, use the auto cost as a percent of your income for an equivalent position in 1980 and today.

To compare costs 100-150 years ago, use GDP per capita rather than production worker wages per hour. This is because you do not want to weight for lower incomes, but for mean incomes. Before 1870 is tricky because so many farmers lived "off the grid" in terms of currency.

To rate the ultra-wealthy, use percent of GDP rather than other indices.

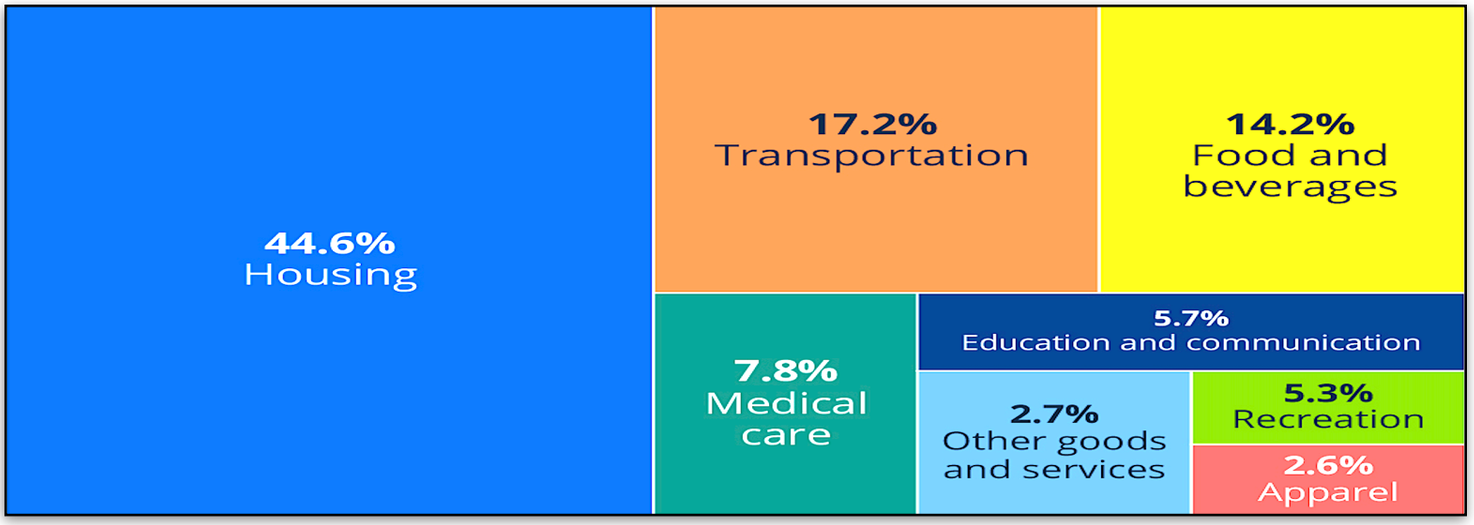
The Problems of CPI as an index
Various items' values morph over time as they become cheaper to produce, or more valuable as hobbies. Take for example autos:

- in the early 1900s were custom-built costing thousands of dollars, perhaps 1000% of GDP per capita.
- In 1908, the Ford Model T cost $825, when GDP per capita was $347 a year, about 240% of GDP per capita.
- In 1925, the Model T Ford dropped to $260, when GDP per capita was $790, about 33% of GDP per capita. Vast changes within only 30 years!

CPI constantly struggles with these equivalencies. If food is now cheaper, housing may not be. If you needed a horse in 1850, you don't need one now, you need an auto! Horses are now a luxury item for the well to do!

If you wanted a home computer in 1970, there were none. How do you compare current prices of items that become cheaper with time, like computers, calculators, international telephone calls, big-screen TVs, and clothing? These are problems the CPI economists struggle with.

The US Bureau of Labor Statistics classifies over 200 categories of CPI expenditure items. They arrange them into eight groups: food and beverage, housing, apparel, transport, medical care, recreation, education, and communication and other. But they weight housing, food and transport as basic non-luxury items. They try to weight items to simulate real cost-of-living expenses, good over the short term but not over the long term.

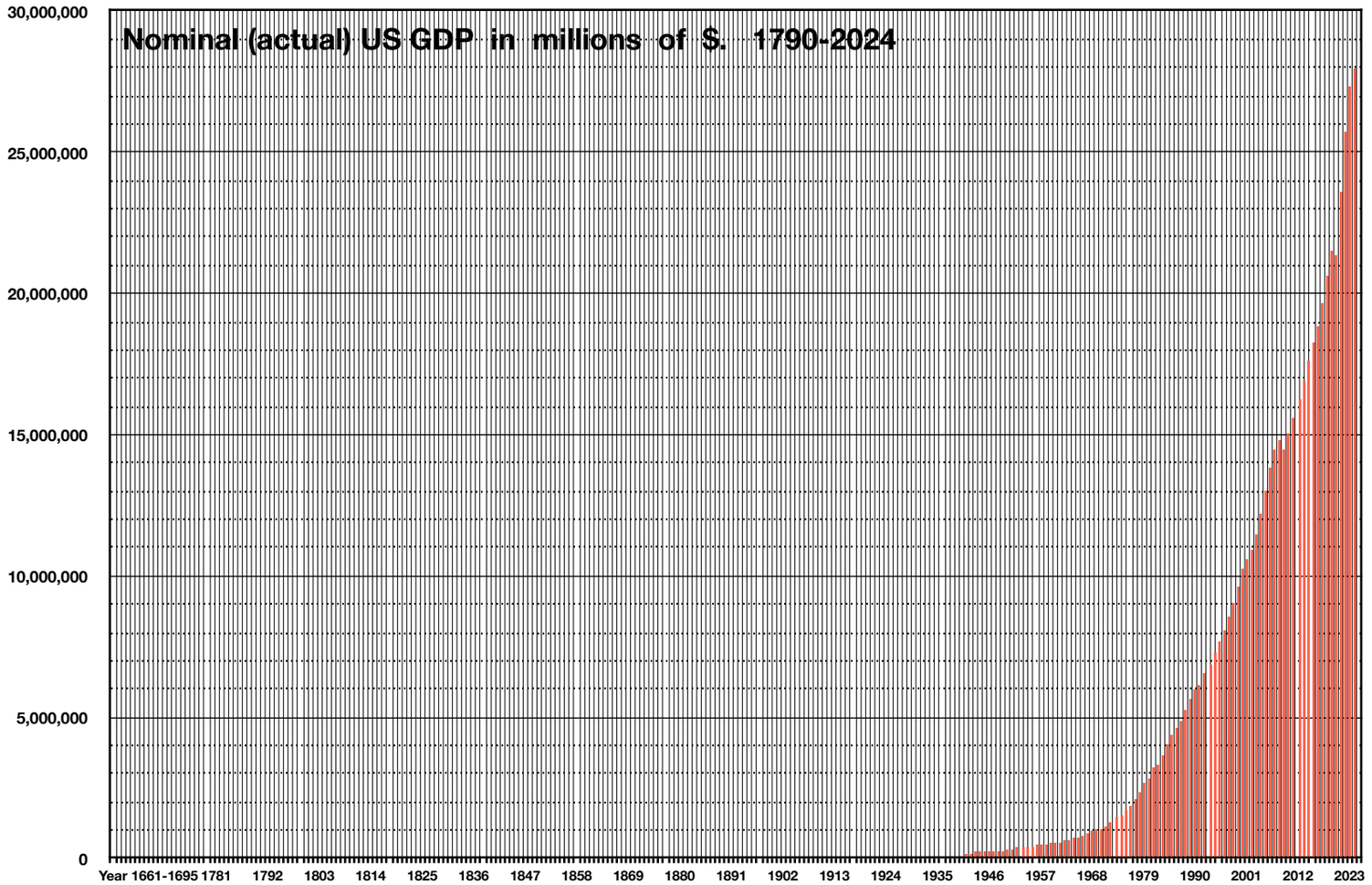


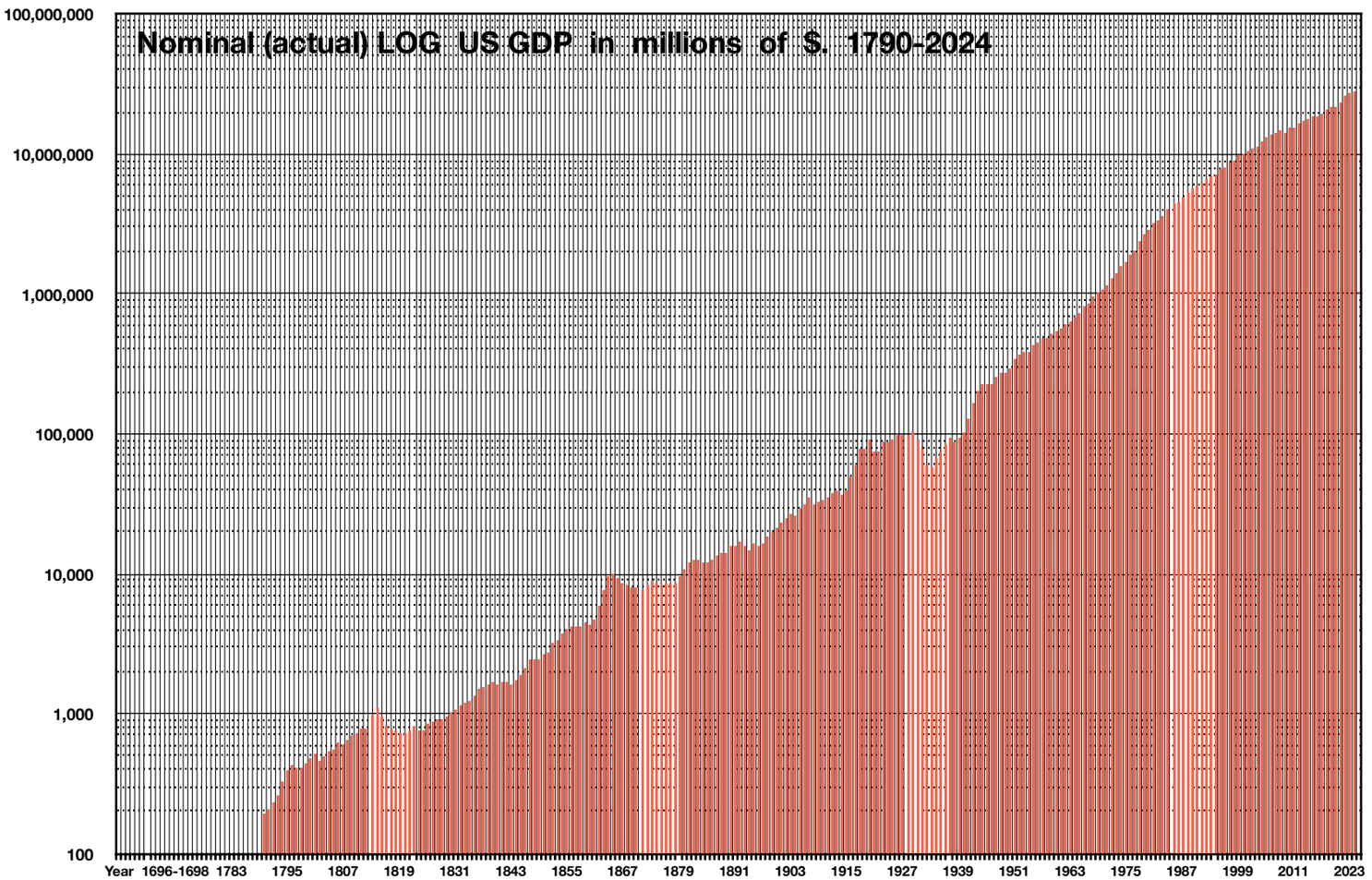
Weighting of CPI components 2024

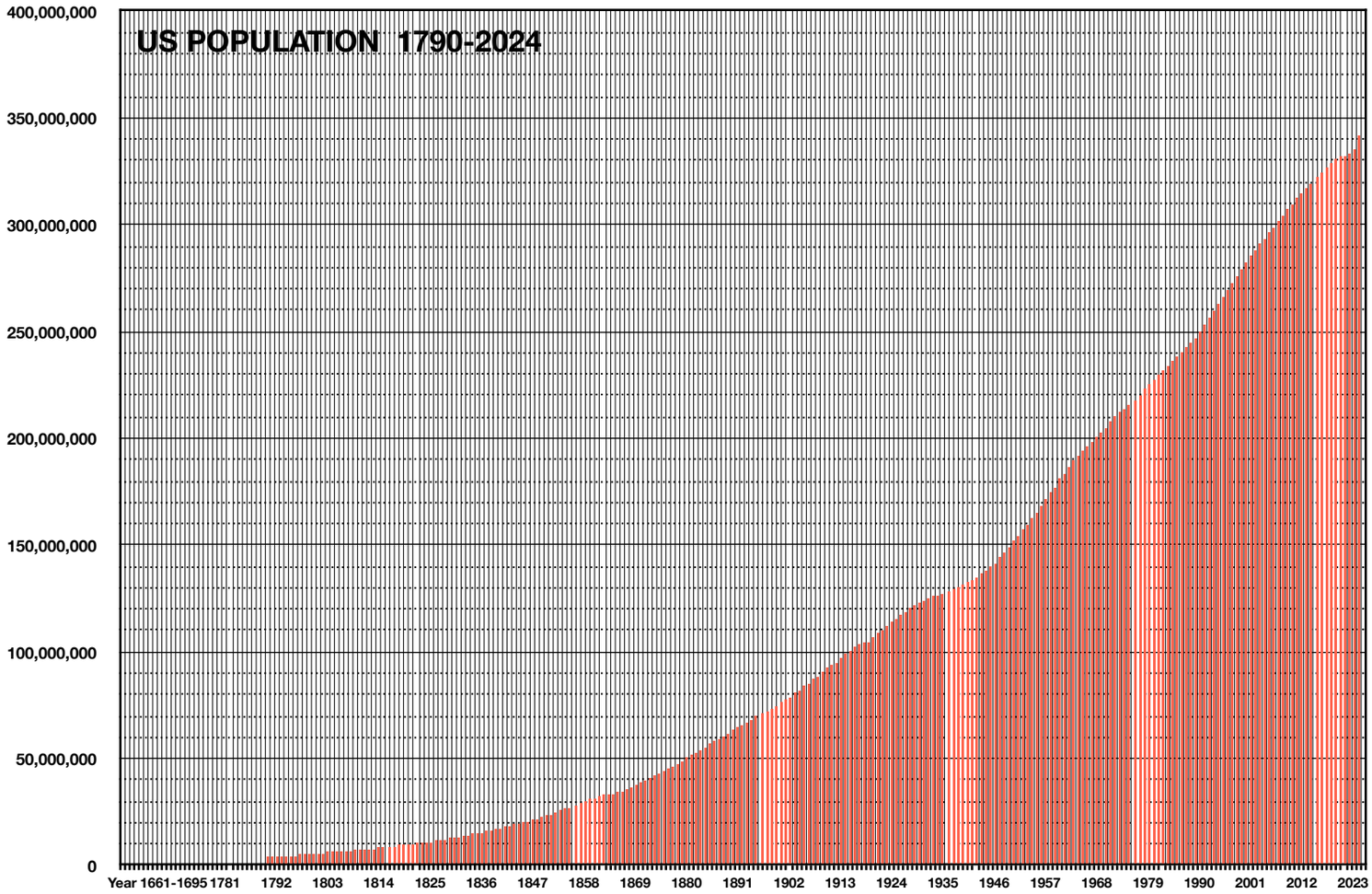
Year	Nominal GDP (million of Dollars)	Real GDP (millions of 2017 dollars)	GDP Deflator (index 2017=100)	Population	Nominal GDP per capita (current dollars)	Real GDP per capita (year 2017 dollars)	U.S. Consumer Price Index	Costs of unskilled Labor (index 1860 = 100)	Production Workers Hourly Wage (nominal dollars)	New York Market gold price US $/oz	Gold/Silver Price Ratio (oz of silver per oz gold)	London Market Price (British £ 1718-1949 or U.S. $ 1950-2011/oz	Exchange rate $ per £	Inflation rate US %	DJIA Yearly Average
1257-1264												£0.89			
1265-1342												£1.07			
1343-1350												£1.17-1.33			
1351-1408												£1.34			
1412-1464												£1.49			
1465-1525												£2.01			
1526-1543												£2.26-2.28			
1546-1603												£3.00-3.05			
1604-1610												£3.38			
1611-1660												£3.73			
1661-1695												£4.05			
1696-1698												£4.45			
1699-1716												£4.35			
1717-1773												£4.25			
1774	0	0	0.00	0	0.00	0.00	7.82	33.00			14.62	£4.24			
1775	0	0	0.00	0	0.00	0.00	7.41	35.00			14.72	£4.23		-5.24	
1776	0	0	0.00	0	0.00	0.00	8.46	32.00			14.55	£4.23		14.17	
1777	0	0	0.00	0	0.00	0.00	10.31	35.00			14.54	£4.23		21.87	
1778	0	0	0.00	0	0.00	0.00	13.38	36.00			14.68	£4.23		29.78	
1779	0	0	0.00	0	0.00	0.00	11.84	31.00			14.80	£4.23		-11.51	
1780	0	0	0.00	0	0.00	0.00	13.29	41.00			14.72	£4.23		12.25	
1781	0	0	0.00	0	0.00	0.00	10.72	43.00			14.78	£4.23		-19.34	
1782	0	0	0.00	0	0.00	0.00	11.76	39.00			14.42	£4.23		9.70	
1783	0	0	0.00	0	0.00	0.00	10.31	36.00			14.48	£4.25		-12.33	
1784	0	0	0.00	0	0.00	0.00	9.91	34.00			14.70	£4.25		-3.88	
1785	0	0	0.00	0	0.00	0.00	9.43	44.00			14.92	£4.24		-4.84	
1786	0	0	0.00	0	0.00	0.00	9.19	40.00			14.96	£4.23		-2.55	
1787	0	0	0.00	0	0.00	0.00	9.02	48.00			14.92	£4.23		-1.85	
1788	0	0	0.00	0	0.00	0.00	8.62	48.00			14.65	£4.23		-4.43	
1789	0	0	0.00	0	0.00	0.00	8.54	42.00			14.75	£4.23		-0.93	
1790	193	4,975	3.88	3,929,000	49.10	1,266.23	8.86	37.00	0.02		15.04	£4.23		3.75	
1791	210	5,274	3.98	4,048,000	51.89	1,302.85	9.10	43.00	0.02	19.39	15.05	£4.23	4.55	2.71	
1792	230	5,663	4.05	4,171,000	55.03	1,357.63	9.27	43.00	0.02	19.39	15.17	£4.23	4.47	1.87	
1793	256	6,113	4.19	4,297,000	59.67	1,422.52	9.59	48.00	0.03	19.39	15.00	£4.23	4.51	3.45	
1794	321	6,905	4.65	4,428,000	72.56	1,559.46	10.64	45.00	0.03	19.39	15.37	£4.23	4.75	10.95	
1795	390	7,331	5.32	4,562,000	85.53	1,607.03	12.17	63.00	0.03	19.39	15.55	£4.23	4.53	14.38	
1796	423	7,553	5.60	4,700,000	90.06	1,606.92	12.81	62.00	0.04	19.39	15.65	£4.23	4.29	5.26	
1797	415	7,692	5.39	4,843,000	85.65	1,588.26	12.33	61.00	0.03	19.39	15.41	£4.23	4.44	-3.75	
1798	418	8,009	5.22	4,990,000	83.73	1,605.09	11.92	69.00	0.04	19.39	15.59	£4.25	4.39	-3.33	
1799	447	8,561	5.22	5,141,000	86.87	1,665.24	11.92	52.00	0.04	19.39	15.74	£4.24	4.13	0.00	
1800	486	9,049	5.37	5,297,000	91.66	1,708.28	12.17	60.00	0.04	19.39	15.68	£4.26	4.55	2.10	
1801	520	9,490	5.48	5,486,000	94.79	1,729.81	12.33	71.00	0.04	19.39	15.46	£4.29	4.38	1.31	
1802	456	9,788	4.66	5,679,000	80.27	1,723.57	10.39	75.00	0.04	19.39	15.26	£4.31	4.49	-15.73	
1803	493	9,954	4.95	5,872,000	83.88	1,695.18	10.96	57.00	0.04	19.39	15.41	£4.34	4.54	5.49	
1804	538	10,341	5.21	6,065,000	88.78	1,704.97	11.44	72.00	0.05	19.39	15.41	£4.36	4.55	4.38	
1805	567	10,889	5.21	6,258,000	90.66	1,739.94	11.36	62.00	0.05	19.39	15.79	£4.36	4.35	-0.70	
1806	624	11,403	5.47	6,451,000	96.76	1,767.69	11.84	86.00	0.05	19.39	15.52	£4.42	4.43	4.23	
1807	595	11,414	5.22	6,644,000	89.60	1,717.93	11.20	69.00	0.05	19.39	15.43	£4.47	4.42	-5.41	
1808	653	11,439	5.71	6,838,000	95.50	1,672.92	12.17	68.00	0.05	19.39	16.08	£4.52	4.63	8.66	
1809	694	12,315	5.64	7,031,000	98.74	1,751.46	11.92	104.00	0.05	19.39	15.96	£4.58	4.57	-2.05	
1810	714	12,997	5.49	7,224,000	98.82	1,799.12	11.92	88.00	0.05	19.39	15.77	£4.63	4.30	0.00	
1811	776	13,588	5.71	7,460,000	104.00	1,821.41	12.73	91.00	0.05	19.39	15.53	£5.19	3.82	6.80	
1812	795	14,130	5.63	7,700,000	103.23	1,835.03	12.89	92.00	0.05	19.39	16.11	£5.48	3.62	1.26	
1813	980	14,934	6.56	7,939,000	123.46	1,881.08	15.47	87.00	0.05	19.39	16.25	£5.76	3.75	20.02	
1814	1,090	15,559	7.01	8,179,000	133.28	1,902.28	17.00	97.00	0.05	20.10	15.04	£5.21	4.24	9.89	
1815	935	15,684	5.96	8,419,000	111.08	1,862.91	14.91	92.00	0.05	21.64	15.26	£4.99	4.90	-12.29	
1816	828	15,683	5.28	8,659,000	95.66	1,811.17	13.62	111.00	0.05	20.95	15.28	£4.36	5.22	-8.65	
1817	777	16,047	4.84	8,899,000	87.35	1,803.26	12.89	93.00	0.05	19.46	15.11	£4.33	4.60	-5.36	
1818	745	16,630	4.48	9,139,000	81.57	1,819.67	12.33	72.00	0.05	19.39	15.35	£4.44	4.50	-4.34	
1819	735	16,952	4.33	9,379,000	78.32	1,807.43	12.33	75.00	0.05	19.39	15.33	£4.36	4.51	0.00	
1820	718	17,629	4.07	9,618,000	74.62	1,832.97	11.36	67.00	0.04	19.39	15.62	£4.25	4.52	-7.87	
1821	742	18,548	4.00	9,939,000	74.67	1,866.23	10.96	74.00	0.05	19.39	15.95	£4.25	4.82	-3.52	
1822	816	19,306	4.23	10,268,000	79.45	1,880.21	11.36	68.00	0.05	19.39	15.80	£4.24	4.98	3.65	
1823	767	19,939	3.85	10,596,000	72.35	1,881.76	10.15	80.00	0.05	19.39	15.84	£4.23	4.80	-10.65	
1824	762	21,136	3.60	10,924,000	69.72	1,934.78	9.35	78.00	0.05	19.39	15.82	£4.23	4.87	-7.88	
1825	832	22,123	3.76	11,252,000	73.96	1,966.10	9.59	68.90	0.05	19.39	15.70	£4.24	4.83	2.57	
1826	876	22,891	3.83	11,580,000	75.65	1,976.76	9.59	68.90	0.05	19.39	15.76	£4.23	4.92	0.00	
1827	925	23,576	3.93	11,909,000	77.71	1,979.68	9.67	68.00	0.05	19.39	15.74	£4.23	4.94	0.83	
1828	907	23,918	3.79	12,237,000	74.11	1,954.56	9.19	67.00	0.05	19.39	15.78	£4.23	4.93	-4.96	
1829	940	24,824	3.79	12,565,000	74.80	1,975.61	9.02	68.00	0.06	19.39	15.78	£4.24	4.86	-1.85	
1830	1,032	27,090	3.81	12,901,000	80.02	2,099.82	8.94	67.00	0.06	19.39	15.82	£4.24	4.76	-0.89	
1831	1,065	29,362	3.63	13,321,000	79.91	2,204.20	8.38	65.00	0.06	19.39	15.72	£4.25	4.86	-6.26	
1832	1,142	31,345	3.64	13,742,000	83.14	2,280.95	8.30	67.00	0.05	19.39	15.73	£4.24	4.86	-0.95	
1833	1,172	32,315	3.63	14,162,000	82.77	2,281.83	8.14	68.90	0.06	19.39	15.93	£4.24	4.79	-1.93	
1834	1,233	32,851	3.75	14,582,000	84.56	2,252.87	8.30	75.70	0.05	19.94	15.73	£4.24	4.64	1.97	
1835	1,358	34,645	3.92	15,003,000	90.49	2,309.22	8.54	75.70	0.05	20.69	15.80	£4.24	4.85	2.89	
1836	1,497	35,641	4.20	15,423,000	97.05	2,310.92	9.02	78.60	0.05	20.69	15.72	£4.24	4.82	5.62	
1837	1,574	36,001	4.37	15,843,000	99.36	2,272.33	9.27	92.20	0.06	21.64	15.83	£4.24	5.10	2.77	
1838	1,618	37,486	4.32	16,264,000	99.51	2,304.85	9.02	77.70	0.06	20.86	15.85	£4.24	4.89	-2.70	
1839	1,685	38,509	4.38	16,684,000	101.01	2,308.11	9.02	81.60	0.06	20.67	15.62	£4.25	4.98	0.00	
1840	1,590	38,454	4.13	17,123,000	92.85	2,245.73	8.38	69.90	0.06	20.67	15.62	£4.24	5.00	-7.10	
1841	1,678	39,530	4.25	17,733,000	94.64	2,229.20	8.46	73.80	0.06	20.67	15.70	£4.24	4.99	0.95	
1842	1,646	40,865	4.03	18,345,000	89.75	2,227.59	7.90	75.70	0.06	20.67	15.87	£4.24	4.80	-6.62	
1843	1,595	42,887	3.72	18,957,000	84.15	2,262.32	7.17	78.60	0.06	20.67	15.93	£4.24	4.79	-9.24	
1844	1,741	45,551	3.82	19,569,000	88.97	2,327.71	7.25	77.70	0.06	20.67	15.85	£4.24	4.86	1.12	
1845	1,899	48,371	3.93	20,182,000	94.11	2,396.72	7.33	75.70	0.06	20.67	15.92	£4.24	4.87	1.10	
1846	2,113	52,407	4.03	20,794,000	101.62	2,520.28	7.41	74.80	0.06	20.67	15.90	£4.24	4.82	1.09	
1847	2,476	56,204	4.41	21,406,000	115.69	2,625.63	7.98	69.90	0.06	20.67	15.80	£4.24	4.79	7.69	
1848	2,496	58,148	4.29	22,018,000	113.37	2,640.94	7.65	83.50	0.07	20.67	15.85	£4.24	4.87	-4.14	

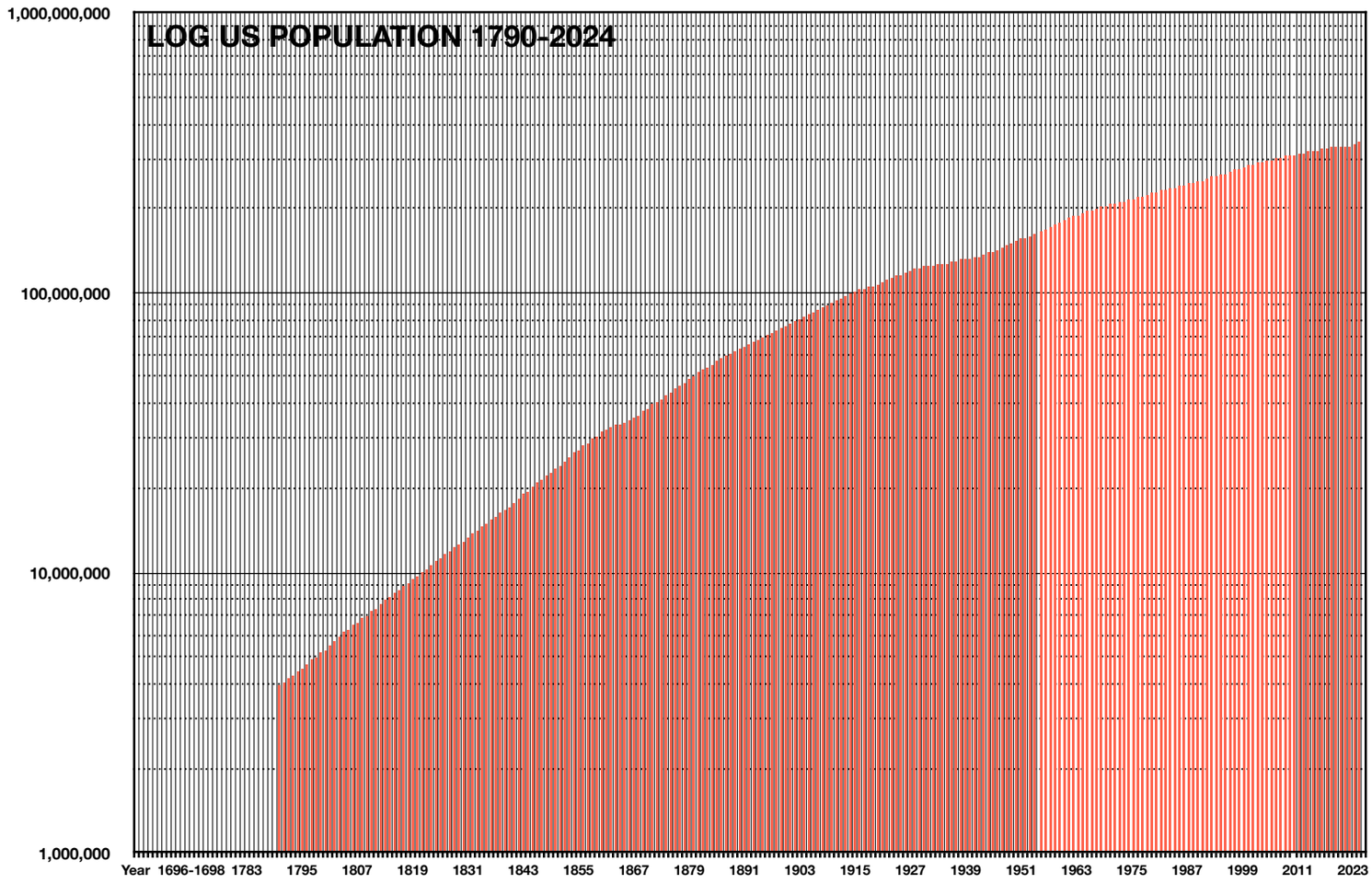
Year	Nominal GDP (million of Dollars)	Real GDP (millions of 2017 dollars)	GDP Deflator (index 2017=100)	Population	Nominal GDP per capita (current dollars)	Real GDP per capita (year 2017 dollars)	U.S. Consumer Price Index	Costs of unskilled Labor (index 1860 = 100)	Production Workers Hourly Wage (nominal dollars)	New York Market gold price US $/oz	Gold/Silver Price Ratio (oz of silver per oz gold)	London Market Price (British £ 1718-1949 or U.S. $ 1950-2011/oz	Exchange rate $ per £	Inflation rate US %	DJIA Yearly Average
1849	2,488	58,960	4.22	22,631,000	109.93	2,605.30	7.41	81.60	0.06	20.67	15.78	£4.24	4.81	-3.14	
1850	2,656	61,711	4.30	23,261,000	114.16	2,652.96	7.57	82.50	0.06	20.67	15.70	£4.24	4.87	2.16	
1851	2,799	66,593	4.20	24,086,000	116.23	2,764.80	7.41	81.60	0.06	20.67	15.46	£4.24	4.91	-2.11	
1852	3,143	74,109	4.24	24,911,000	126.19	2,974.97	7.49	86.40	0.07	20.67	15.59	£4.24	4.90	1.08	
1853	3,383	79,914	4.23	25,736,000	131.46	3,105.13	7.49	85.40	0.07	20.67	15.33	£4.24	4.89	0.00	
1854	3,789	82,574	4.59	26,561,000	142.67	3,108.83	8.14	90.30	0.07	20.67	15.33	£4.24	4.88	8.68	
1855	4,048	85,819	4.72	27,386,000	147.80	3,133.67	8.38	93.20	0.07	20.67	15.38	£4.24	4.89	2.95	
1856	4,103	88,862	4.62	28,212,000	145.43	3,149.80	8.22	94.20	0.07	20.67	15.38	£4.24	4.91	-1.91	
1857	4,241	89,386	4.74	29,037,000	146.04	3,078.35	8.46	99.00	0.07	20.70	15.27	£4.24	4.89	2.92	
1858	4,151	92,975	4.46	29,862,000	139.00	3,113.48	7.98	93.20	0.08	20.67	15.38	£4.24	4.86	-5.67	
1859	4,475	99,417	4.50	30,687,000	145.82	3,239.71	8.06	101.90	0.08	20.67	15.19	£4.24	4.90	1.00	
1860	4,410	99,831	4.42	31,513,000	139.93	3,167.93	8.06	100.00	0.08	20.67	15.29	£4.24	4.85	0.00	
1861	4,673	101,732	4.59	32,215,000	145.06	3,157.92	8.54	102.00	0.08	20.67	15.50	£4.24	4.77	5.96	
1862	5,881	114,382	5.14	32,871,794	178.92	3,479.65	9.75	106.00	0.09	23.42	15.35	£4.24	5.56	14.17	
1863	7,746	123,141	6.29	33,327,437	232.41	3,694.88	12.17	121.00	0.10	30.02	15.37	£4.24	7.07	24.82	
1864	9,600	124,434	7.71	33,768,002	284.28	3,684.97	15.23	138.00	0.11	42.03	15.37	£4.24	9.97	25.14	
1865	10,012	127,773	7.84	34,151,973	293.17	3,741.32	15.79	145.00	0.11	32.52	15.44	£4.24	7.69	3.68	
1866	9,098	121,695	7.48	34,788,937	261.52	3,498.09	15.39	145.00	0.11	29.13	15.43	£4.24	6.88	-2.53	
1867	8,465	124,164	6.82	35,595,758	237.82	3,488.17	14.34	145.00	0.11	28.57	15.57	£4.24	6.75	-6.82	
1868	8,261	128,948	6.41	36,499,322	226.33	3,532.89	13.78	146.00	0.11	28.88	15.59	£4.24	6.83	-3.91	
1869	8,009	133,343	6.01	37,478,604	213.71	3,557.84	13.21	146.00	0.11	27.49	15.60	£4.24	6.48	-4.14	
1870	7,899	137,323	5.75	38,558,000	204.86	3,561.48	12.65	142.00	0.11	23.75	15.57	£4.24	5.59	-4.24	
1871	7,751	143,856	5.39	39,593,785	195.75	3,633.30	11.84	142.00	0.12	23.09	15.57	£4.24	5.46	-6.40	
1872	8,402	155,894	5.39	40,657,395	206.65	3,834.33	11.84	143.00	0.12	23.24	15.63	£4.24	5.44	0.00	
1873	8,936	169,192	5.28	41,749,577	214.03	4,052.55	11.60	136.00	0.12	23.52	15.93	£4.24	5.55	-2.03	
1874	8,659	172,270	5.03	42,871,098	201.98	4,018.32	11.04	131.00	0.12	22.99	16.16	£4.24	5.42	-4.83	
1875	8,331	171,963	4.84	44,022,746	189.24	3,906.23	10.64	125.00	0.12	23.75	16.64	£4.24	5.59	-3.62	
1876	8,482	179,081	4.74	45,205,332	187.62	3,961.51	10.39	118.00	0.11	23.05	17.75	£4.24	5.42	-2.35	
1877	8,700	187,992	4.63	46,419,685	187.41	4,049.83	10.15	114.00	0.11	21.66	17.20	£4.24	5.08	-2.31	
1878	8,555	194,033	4.41	47,666,659	179.47	4,070.62	9.67	111.00	0.11	20.84	17.92	£4.24	4.89	-4.73	
1879	9,555	216,648	4.41	48,947,131	195.21	4,426.17	9.67	109.00	0.11	20.67	18.39	£4.24	4.85	0.00	
1880	10,592	234,878	4.51	50,262,000	210.73	4,673.07	9.91	116.00	0.11	20.67	18.05	£4.24	4.85	2.48	
1881	11,902	264,594	4.50	51,542,000	230.92	5,133.55	9.91	120.00	0.11	20.67	18.25	£4.24	4.83	0.00	
1882	12,519	278,992	4.49	52,821,000	237.01	5,281.83	9.91	123.00	0.11	20.67	18.20	£4.24	4.87	0.00	
1883	12,640	287,066	4.40	54,100,000	233.65	5,306.22	9.71	128.00	0.11	20.67	18.64	£4.24	4.85	-2.02	
1884	12,107	282,652	4.28	55,379,000	218.62	5,103.96	9.51	130.00	0.12	20.67	18.61	£4.24	4.85	-2.06	
1885	11,925	283,911	4.20	56,658,000	210.48	5,010.95	9.32	128.00	0.12	20.67	19.41	£4.24	4.86	-2.00	
1886	12,549	307,460	4.08	57,938,000	216.59	5,306.71	9.12	129.00	0.12	20.67	20.78	£4.24	4.86	-2.15	
1887	13,565	330,278	4.11	59,217,000	229.08	5,577.41	9.22	132.00	0.13	20.67	21.10	£4.24	4.85	1.10	
1888	14,332	349,811	4.10	60,496,000	236.90	5,782.38	9.22	138.00	0.13	20.67	22.00	£4.24	4.87	0.00	
1889	14,338	360,323	3.98	61,775,000	232.10	5,832.83	8.92	138.00	0.13	20.67	22.10	£4.24	4.87	-3.25	
1890	15,607	395,405	3.95	63,056,000	247.52	6,270.70	8.82	138.00	0.13	20.67	19.75	£4.24	4.86	-1.12	
1891	15,944	399,900	3.99	64,361,000	247.73	6,213.39	8.82	138.00	0.13	20.67	20.92	£4.25	4.86	0.00	
1892	16,920	420,181	4.03	65,666,000	257.66	6,398.76	8.82	138.00	0.13	20.67	23.72	£4.25	4.87	0.00	
1893	15,934	395,447	4.03	66,970,000	237.92	5,904.84	8.72	138.00	0.14	20.67	26.49	£4.25	4.86	-1.13	
1894	14,606	376,410	3.88	68,275,000	213.93	5,513.15	8.34	132.00	0.13	20.67	32.56	£4.24	4.88	-4.36	
1895	16,114	419,444	3.84	69,580,000	231.59	6,028.23	8.14	135.00	0.13	20.67	31.60	£4.24	4.89	-2.40	
1896	15,990	412,244	3.88	70,885,000	225.57	5,815.68	8.14	133.00	0.13	20.67	30.59	£4.25	4.87	0.00	40.45
1897	16,666	429,886	3.88	72,189,000	230.86	5,955.01	8.04	133.00	0.13	20.67	34.20	£4.25	4.86	-1.23	49.41
1898	18,663	476,920	3.91	73,494,000	253.94	6,489.23	8.04	135.00	0.13	20.67	35.03	£4.25	4.85	0.00	60.52
1899	20,119	509,382	3.95	74,799,000	268.98	6,810.01	8.04	137.00	0.13	20.67	34.36	£4.24	4.86	0.00	66.08
1900	21,197	521,778	4.06	76,094,000	278.56	6,857.02	8.14	140.00	0.14	20.67	33.33	£4.25	4.86	1.24	70.71
1901	22,931	549,046	4.18	77,584,000	295.56	7,076.79	8.24	144.00	0.14	20.67	34.68	£4.25	4.87	1.23	64.56
1902	24,754	576,747	4.29	79,163,000	312.69	7,285.57	8.34	148.00	0.15	20.67	39.15	£4.24	4.87	1.21	64.29
1903	26,647	592,997	4.49	80,632,000	330.48	7,354.36	8.53	154.00	0.15	20.67	38.10	£4.25	4.86	2.28	49.11
1904	26,360	571,371	4.61	82,166,000	320.82	6,953.86	8.63	155.00	0.15	20.67	35.70	£4.25	4.87	1.17	69.61
1905	29,523	635,290	4.65	83,822,000	352.21	7,579.04	8.53	157.00	0.16	20.67	33.87	£4.24	4.86	-1.16	96.20
1906	31,794	660,583	4.81	85,450,000	372.08	7,730.64	8.72	165.00	0.16	20.67	30.54	£4.25	4.85	2.23	94.35
1907	34,639	676,850	5.12	87,008,000	398.11	7,779.17	9.11	172.00	0.17	20.67	31.24	£4.25	4.86	4.47	58.75
1908	30,797	602,975	5.11	88,710,000	347.16	6,797.15	8.92	164.00	0.16	20.67	38.64	£4.25	4.87	-2.09	86.15
1909	32,540	646,065	5.04	90,490,000	359.60	7,139.62	8.82	166.00	0.17	20.67	39.74	£4.24	4.87	-1.12	99.05
1910	33,746	653,021	5.17	92,407,000	365.19	7,066.79	9.21	172.00	0.18	20.67	38.22	£4.24	4.86	4.42	81.36
1911	34,675	674,178	5.14	93,863,000	369.42	7,182.58	9.21	168.00	0.18	20.67	38.33	£4.24	4.86	0.00	81.68
1912	37,745	705,765	5.35	95,335,000	395.92	7,403.00	9.40	171.00	0.19	20.67	33.62	£4.24	4.87	2.06	87.87
1913	39,517	733,625	5.39	97,225,000	406.45	7,545.64	9.60	179.00	0.20	20.67	34.19	£4.24	4.87	2.13	78.78
1914	36,831	677,455	5.44	99,111,000	371.61	6,835.31	9.69	180.00	0.20	20.67	37.37	£4.24	4.93	0.94	54.58
1915	39,048	695,924	5.61	100,546,000	388.36	6,921.45	9.74	182.00	0.20	20.67	40.48	£4.24	4.76	0.52	74.45
1916	50,117	792,425	6.32	101,961,000	491.53	7,771.84	10.64	224.00	0.24	20.67	30.78	£4.24	4.77	9.24	95.27
1917	60,278	772,825	7.80	103,414,000	582.88	7,473.12	12.82	279.00	0.29	20.67	24.61	£4.24	4.76	20.49	87.87
1918	76,567	842,527	9.09	104,550,000	732.35	8,058.60	15.06	351.00	0.36	20.67	21.00	£4.24	4.76	17.47	80.97
1919	79,090	849,287	9.31	105,063,000	752.78	8,083.60	17.30	409.00	0.43	20.67	18.44	£4.50	4.43	14.87	99.79
1920	89,246	841,350	10.61	106,461,000	838.30	7,902.90	20.04	469.00	0.54	20.67	20.28	£5.65	3.66	15.84	90.01
1921	74,314	822,062	9.04	108,538,000	684.68	7,573.95	17.90	388.00	0.48	20.67	32.76	£5.35	3.85	-10.68	73.39
1922	74,140	867,711	8.54	110,049,000	673.70	7,884.76	16.77	357.00	0.44	20.67	30.43	£4.67	4.43	-6.31	93.24
1923	86,238	981,966	8.78	111,947,000	770.35	8,771.70	17.07	393.00	0.48	20.67	31.69	£4.51	4.58	1.79	94.87
1924	87,786	1,012,202	8.67	114,109,000	769.32	8,870.48	17.10	406.00	0.51	20.67	30.80	£4.69	4.42	0.18	99.65
1925	91,449	1,035,978	8.83	115,829,000	789.52	8,944.03	17.53	404.00	0.50	20.67	29.78	£4.27	4.83	2.51	134.40
1926	97,885	1,103,673	8.87	117,397,000	833.79	9,401.20	17.70	409.00	0.51	20.67	33.11	£4.25	4.86	0.97	153.00
1927	96,466	1,114,332	8.66	119,035,000	810.40	9,361.38	17.37	418.00	0.52	20.67	36.47	£4.25	4.86	-1.86	176.07
1928	98,305	1,127,103	8.72	120,509,000	815.74	9,352.85	17.13	420.00	0.52	20.67	35.34	£4.25	4.87	-1.38	226.17
1929	104,556	1,191,100	8.75	121,878,000	857.87	9,772.89	17.13	431.00	0.52	20.67	38.78	£4.25	4.86	0.00	313.54
1930	92,160	1,089,800	8.42	123,188,000	748.12	8,846.64	16.70	424.00	0.53	20.67	53.74	£4.25	4.86	-2.51	236.04
1931	77,391	1,020,000	7.58	124,149,000	623.37	8,215.93	15.23	407.00	0.51	20.67	71.25	£4.63	4.54	-8.80	138.60
1932	59,522	888,400	6.72	124,949,000	476.37	7,110.10	13.66	355.00	0.45	20.67	73.29	£5.90	3.51	-10.31	64.53
1933	57,154	877,400	6.54	125,690,000	454.72	6,980.67	12.96	356.00	0.44	24.44	69.83	£6.24	4.24	-5.12	84.50
1934	66,800	972,300	6.86	126,485,000	528.13	7,687.08	13.39	424.00	0.53	34.94	72.36	£6.88	5.04	3.32	98.16
1935	74,241	1,058,800	6.99	127,362,000	582.91	8,313.31	13.73	439.00	0.54	35.00	54.19	£7.11	4.90	2.54	120.35
1936	84,830	1,195,300	7.08	128,181,000	661.80	9,325.09	13.86	445.00	0.55	35.00	77.09	£7.01	4.97	0.95	162.07
1937	93,003	1,256,500	7.34	128,961,000	721.17	9,743.26	14.36	506.00	0.63	35.00	77.44	£7.04	4.94	3.61	166.45

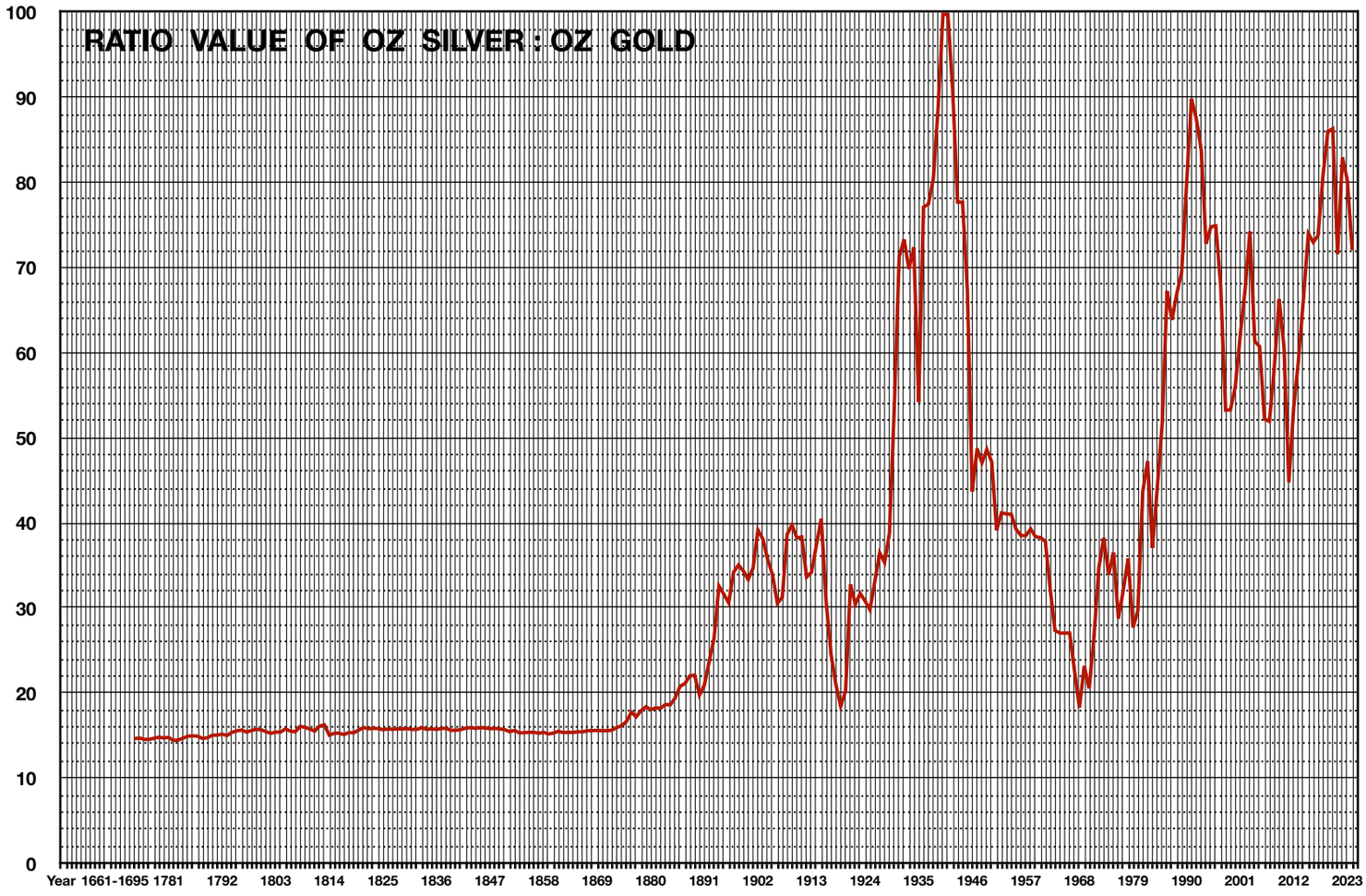
Year	Nominal GDP (million of Dollars)	Real GDP (millions of 2017 dollars)	GDP Deflator (index 2017=100)	Population	Nominal GDP per capita (current dollars)	Real GDP per capita (year 2017 dollars)	U.S. Consumer Price Index	Costs of unskilled Labor (index 1860 = 100)	Production Workers Hourly Wage (nominal dollars)	New York Market gold price US $/ oz	Gold/Silver Price Ratio (oz of silver per oz gold)	London Market Price (British £ 1718-1949 or U.S. $ 1950-2011/oz	Exchange rate $ per £	Inflation rate US %	DJIA Yearly Average
1938	87,352	1,214,900	7.20	129,969,000	672.10	9,347.61	14.09	520.00	0.64	35.00	80.39	£7.13	4.89	-1.88	132.36
1939	93,437	1,312,400	7.11	131,028,000	713.11	10,016.18	13.89	527.00	0.64	35.00	88.84	£7.72	4.44	-1.42	142.57
1940	102,899	1,428,100	7.18	132,122,000	778.82	10,808.95	14.03	542.00	0.67	35.00	99.76	£8.40	3.83	1.01	134.64
1941	129,309	1,681,000	7.65	133,402,000	969.32	12,601.01	14.73	604.00	0.74	35.00	99.73	£8.40	4.03	4.99	121.93
1942	165,952	1,998,500	8.29	134,860,000	1,230.55	14,819.07	16.30	686.00	0.86	35.00	90.57	£8.40	4.04	10.66	107.15
1943	203,084	2,338,800	8.68	136,739,000	1,485.19	17,104.12	17.30	757.00	0.98	35.00	77.67	£8.40	4.04	6.13	134.92
1944	224,447	2,524,800	8.89	138,397,000	1,621.76	18,243.17	17.60	791.00	1.05	35.00	77.67	£8.40	4.04	1.73	143.32
1945	228,007	2,500,100	9.11	139,928,000	1,629.46	17,867.05	18.00	813.00	1.06	35.00	67.40	£8.40	4.03	2.27	169.66
1946	227,535	2,209,900	10.26	141,389,000	1,609.28	15,629.93	19.54	900.00	1.13	35.00	43.67	£8.40	4.03	8.56	191.52
1947	249,616	2,184,600	11.41	144,126,000	1,731.93	15,157.57	22.34	1,017.00	1.30	35.00	48.73	£8.40	4.03	14.33	177.48
1948	274,468	2,274,600	12.06	146,631,000	1,871.83	15,512.41	24.08	1,087.00	1.41	35.00	47.07	£8.40	4.03	7.79	179.78
1949	272,475	2,261,900	12.05	149,188,000	1,826.39	15,161.41	23.85	1,131.00	1.46	35.00	48.61	£8.40	3.69	-0.96	179.67
1950	299,827	2,458,500	12.17	151,684,000	1,976.66	16,208.04	24.08	1,184.00	1.55	35.00	47.14	$34.71	2.80	0.96	216.28
1951	346,914	2,656,300	12.99	154,287,000	2,248.50	17,216.62	25.98	1,283.00	1.72	35.00	39.12	$34.71	2.80	7.89	257.41
1952	367,341	2,764,800	13.27	156,954,000	2,340.44	17,615.35	26.55	1,358.00	1.83	35.00	41.16	$34.71	2.79	2.19	270.35
1953	389,218	2,894,400	13.44	159,565,000	2,439.24	18,139.32	26.75	1,450.00	1.94	35.00	41.04	$34.71	2.81	0.75	275.84
1954	390,549	2,877,700	13.58	162,391,000	2,404.99	17,720.81	26.88	1,521.00	1.97	35.00	41.01	$34.96	2.81	0.49	334.34
1955	425,478	3,083,000	13.77	165,275,000	2,574.36	18,653.76	26.78	1,584.00	2.05	35.00	39.24	$35.01	2.79	-0.37	442.69
1956	449,353	3,148,800	14.24	168,221,000	2,671.21	18,718.23	27.18	1,662.00	2.16	35.00	38.50	$35.00	2.80	1.49	493.21
1957	474,039	3,215,100	14.74	171,274,000	2,767.72	18,771.68	28.15	1,745.00	2.24	35.00	38.50	$34.95	2.79	3.57	476.07
1958	481,229	3,191,200	15.09	174,141,000	2,763.44	18,325.38	28.92	1,830.00	2.39	35.00	39.27	$35.10	2.81	2.74	491.26
1959	521,654	3,412,400	15.29	177,130,000	2,945.03	19,264.95	29.16	1,903.00	2.45	35.00	38.34	$35.09	2.81	0.83	632.57
1960	542,382	3,500,300	15.49	180,760,000	3,000.56	19,364.35	29.62	1,976.00	2.54	35.00	38.27	$35.28	2.81	1.58	618.02
1961	562,209	3,590,100	15.66	183,742,000	3,059.77	19,538.81	29.92	2,047.00	2.60	35.00	37.82	$35.15	2.80	1.01	691.74
1962	603,922	3,810,100	15.85	186,590,000	3,236.63	20,419.64	30.26	2,114.00	2.71	35.00	32.22	$35.10	2.81	1.14	639.14
1963	637,450	3,976,100	16.03	189,300,000	3,367.41	21,004.23	30.62	2,181.00	2.83	35.00	27.34	$35.09	2.80	1.19	714.69
1964	684,460	4,205,300	16.28	191,927,000	3,566.25	21,910.93	31.03	2,245.00	2.89	35.00	27.04	$35.09	2.79	1.34	834.09
1965	742,289	4,478,600	16.57	194,347,000	3,819.40	23,044.35	31.56	2,314.00	3.00	35.00	27.04	$35.13	2.80	1.71	910.70
1966	813,414	4,773,900	17.04	196,599,000	4,137.43	24,282.42	32.46	2,399.00	3.14	35.00	27.04	$35.17	2.79	2.85	872.78
1967	859,959	4,904,900	17.53	198,752,000	4,326.79	24,678.49	33.40	2,515.00	3.29	35.00	22.56	$35.19	2.75	2.90	879.48
1968	940,651	5,145,900	18.28	200,745,000	4,685.80	25,634.01	34.80	2,660.00	3.52	39.26	18.29	$38.69	2.39	4.19	903.96
1969	1,017,615	5,306,600	19.18	202,736,000	5,019.41	26,174.93	36.67	2,822.00	3.72	41.51	23.16	$41.09	2.39	5.37	875.72
1970	1,073,303	5,316,400	20.19	205,089,000	5,233.35	25,922.40	38.84	3,021.00	3.93	36.41	20.54	$35.94	2.40	5.92	753.12
1971	1,164,850	5,491,400	21.21	207,692,000	5,608.55	26,440.11	40.51	3,265.00	4.26	41.25	26.66	$40.80	2.44	4.30	884.87
1972	1,279,110	5,780,000	22.13	209,924,000	6,093.21	27,533.77	41.85	3,499.00	4.59	58.60	34.75	$58.16	2.50	3.31	950.08
1973	1,425,376	6,106,400	23.34	211,939,000	6,725.41	28,812.06	44.45	3,734.00	4.95	97.81	38.21	$97.32	2.45	6.21	924.07
1974	1,545,243	6,073,400	25.43	213,898,000	7,224.20	28,393.91	49.33	4,008.50	5.44	159.74	33.90	$159.26	2.34	10.98	759.13
1975	1,684,904	6,060,900	27.80	215,981,000	7,801.17	28,062.19	53.84	4,353.57	6.02	161.49	36.51	$161.02	2.22	9.14	802.89
1976	1,873,412	6,387,400	29.33	218,086,000	8,590.24	29,288.45	56.94	4,768.12	6.53	125.32	28.76	$124.84	1.80	5.76	975.20
1977	2,081,826	6,682,800	31.15	220,289,000	9,450.43	30,336.51	60.61	5,150.13	7.15	148.31	32.05	$147.71	1.74	6.45	894.37
1978	2,351,599	7,052,700	33.34	222,629,000	10,562.86	31,679.16	65.22	5,569.88	7.77	193.55	35.80	$193.22	1.92	7.61	821.13
1979	2,627,333	7,276,000	36.10	225,106,000	11,671.54	32,322.55	72.57	6,041.50	8.34	307.50	27.69	$306.68	2.12	11.27	844.38
1980	2,857,307	7,257,300	39.38	227,726,000	12,547.13	31,868.56	82.38	6,649.90	9.12	612.56	29.66	$612.56	2.33	13.52	891.14
1981	3,207,041	7,441,500	43.09	230,008,000	13,943.17	32,353.22	90.93	7,208.77	10.00	459.64	43.65	$460.03	2.02	10.38	932.95
1982	3,343,789	7,307,300	45.76	232,218,000	14,399.35	31,467.41	96.50	7,588.43	10.80	375.91	47.24	$375.67	1.75	6.13	884.53
1983	3,634,038	7,642,300	47.55	234,333,000	15,508.01	32,612.99	99.60	7,913.85	11.22	424.00	37.03	$424.35	1.52	3.21	1,190.78
1984	4,037,613	8,195,300	49.26	236,394,000	17,080.01	34,667.97	103.90	8,201.54	11.78	360.66	44.26	$360.48	1.34	4.32	1,178.59
1985	4,338,979	8,537,000	50.82	238,506,000	18,192.33	35,793.65	107.60	8,484.52	12.50	317.66	51.68	$317.28	1.30	3.56	1,327.99
1986	4,579,631	8,832,600	51.85	240,683,000	19,027.65	36,698.06	109.60	8,647.23	12.90	368.24	67.25	$367.51	1.47	1.86	1,793.10
1987	4,855,215	9,137,700	53.13	242,843,000	19,993.23	37,628.01	113.60	8,838.23	13.05	447.95	63.84	$446.47	1.64	3.65	2,277.53
1988	5,236,438	9,519,400	55.00	245,061,000	21,367.90	38,845.02	118.30	9,175.44	13.58	438.31	66.95	$437.05	1.78	4.14	2,061.48
1989	5,641,580	9,869,000	57.16	247,387,000	22,804.67	39,892.96	124.00	9,484.36	14.00	382.58	69.49	$381.43	1.64	4.82	2,510.33
1990	5,963,144	10,055,100	59.31	250,181,000	23,835.32	40,191.30	130.70	9,878.16	14.41	384.93	79.78	$383.47	1.78	5.40	2,679.45
1991	6,158,129	10,044,200	61.30	253,530,000	24,289.55	39,617.40	136.20	10,255.46	14.93	363.29	89.83	$362.18	1.77	4.21	2,929.04
1992	6,520,327	10,398,000	62.70	256,922,000	25,378.62	40,471.43	140.30	10,531.36	15.63	344.97	87.47	$343.73	1.77	3.01	3,284.08
1993	6,858,559	10,684,200	64.19	260,282,000	26,350.49	41,048.56	144.50	10,811.98	16.12	360.91	83.85	$359.77	1.50	2.99	3,524.92
1994	7,287,236	11,114,600	65.56	263,455,000	27,660.27	42,187.85	148.20	11,099.67	16.56	385.42	72.79	$384.01	1.53	2.56	3,794.22
1995	7,639,749	11,413,000	66.93	266,588,000	28,657.51	42,811.38	152.40	11,446.31	16.66	385.50	74.78	$384.16	1.58	2.83	4,494.28
1996	8,073,122	11,843,600	68.16	269,714,000	29,932.16	43,911.70	156.90	11,842.48	16.84	389.09	74.89	$387.69	1.56	2.95	5,739.63
1997	8,577,552	12,370,300	69.34	272,958,000	31,424.44	45,319.43	160.50	12,255.15	18.12	332.39	67.91	$331.10	1.64	2.29	7,447.01
1998	9,062,817	12,924,900	70.10	276,154,000	32,817.98	46,803.23	163.00	12,681.97	18.18	295.24	53.24	$294.16	1.66	1.56	8,630.76
1999	9,631,172	13,543,800	71.08	279,328,000	34,479.79	48,487.08	166.60	13,097.00	18.75	279.91	53.26	$278.64	1.62	2.21	10,481.56
2000	10,250,952	14,096,000	72.71	282,398,000	36,299.66	49,915.37	172.20	13,597.00	19.36	280.10	55.96	$279.03	1.52	3.36	10,729.38
2001	10,581,929	14,230,700	74.39	285,225,000	37,100.29	49,892.89	177.10	14,428.00	19.36	272.22	61.95	$271.04	1.44	2.85	10,199.29
2002	10,929,108	14,472,700	75.50	287,955,000	37,954.22	50,260.28	179.90	14,655.00	21.02	311.33	67.32	$309.68	1.50	1.58	9,214.85
2003	11,456,450	14,877,300	77.01	290,626,000	39,419.91	51,190.53	184.00	15,146.00	21.54	364.80	74.22	$363.32	1.63	2.28	9,006.64
2004	12,217,196	15,449,800	79.07	293,262,000	41,659.66	52,682.58	188.90	15,146.00	23.07	410.52	61.30	$409.17	1.83	2.66	10,315.51
2005	13,039,197	15,988,000	81.54	295,993,000	44,052.38	54,014.79	195.30	15,448.00	23.92	446.00	60.70	$444.45	1.82	3.39	10,546.66
2006	13,815,583	16,433,100	84.07	298,818,000	46,234.11	54,993.68	201.60	15,826.00	24.37	606.00	52.20	$603.77	1.84	3.23	11,409.78
2007	14,474,228	16,762,400	86.35	301,696,000	47,976.20	55,560.56	207.34	16,166.00	25.07	699.00	51.91	$695.39	2.00	2.85	13,178.26
2008	14,769,862	16,781,500	87.98	304,543,000	48,498.45	55,103.88	215.30	17,110.00	25.87	874.00	58.17	$871.96	1.85	3.84	11,244.06
2009	14,478,067	16,349,100	88.56	307,240,000	47,122.99	53,212.80	214.54	17,148.00	26.15	975.00	66.27	$972.35	1.57	-0.36	8,885.65
2010	15,048,971	16,789,800	89.62	309,839,000	48,570.29	54,188.79	218.06	16,770.00	26.44	1,227.00	60.64	$1,224.53	1.55	1.64	10,668.58
2011	15,599,732	17,052,400	91.47	312,295,000	49,951.91	54,603.50	224.94	17,034.00	26.88	1,572.00	44.75	$1,571.52	1.60	3.16	11,957.57
2012	16,253,970	17,442,800	93.18	314,725,000	51,644.99	55,422.35	229.59	17,790.00	27.15	1,700.00	53.58	$1,668.98	1.59	2.07	12,966.44
2013	16,880,683	17,812,200	94.79	317,099,000	53,234.74	56,172.36	232.96	17,827.44	27.92	1,415.00	59.31	$1,411.23	1.56	1.46	15,009.52
2014	17,608,138	18,261,700	96.44	319,601,000	55,094.13	57,139.06	236.74	18,431.76	29.40	1,269.00	66.38	$1,266.40	1.65	1.62	16,777.69
2015	18,295,019	18,799,600	97.28	322,113,000	56,796.90	58,363.37	237.02	18,582.84	30.55	1,163.00	73.98	$1,160.06	1.53	0.12	17,587.03
2016	18,804,913	19,141,700	98.21	324,609,000	57,930.97	58,968.48	240.01	19,036.08	31.95	1,252.00	72.96	$1,250.74	1.35	1.26	17,927.11
2017	19,612,102	19,612,100	100.00	326,860,000	60,001.54	60,001.53	245.12	19,640.40	32.39	1,260.00	73.76	$1,257.12	1.29	2.13	21,750.20
2018	20,656,516	20,193,900	102.29	328,794,000	62,825.10	61,418.09	251.11	20,924.60	32.06	1,270.00	80.77	$1,268.92	1.33	2.44	25,046.86
2019	21,521,395	20,692,100	104.01	330,513,000	65,115.12	62,606.01	255.66	22,359.80	32.36	1,390.00	85.97	$1,393.34	1.28	1.81	26,379.59
2020	21,322,950	20,234,100	105.41	331,800,000	64,266.79	60,985.03	258.81	23,502.40	32.54	1,770.00	86.30	$1,771.54	1.28	1.23	26,890.67
2021	23,594,031	21,407,700	110.22	332,367,000	70,991.30	64,412.92	270.97	23,766.77	33.39	1,800.00	71.58	$1,799.18	1.37	4.70	34,055.29
2022	25,744,108	21,822,000	118.00	333,568,000	77,171.74	65,414.65	292.66	25,740.26	34.76	1,800.00	82.93	$1,801.00	1.37	8.00	32,898.34
2023	27,360,900	22,376,900	122.27	335,208,000	81,623.65	66,755.27	304.70	26,741.16	35.72	1,940.00	80.25	$1,941.19	1.23	4.12	34,121.54
2024 (est.)	27,963,000	22,870,000	124.96	341,814,420	85,000	68,223.89	312.32	28,506.41		2,400.00	72.00	2,400.00	1.27	3.25	38,888.77

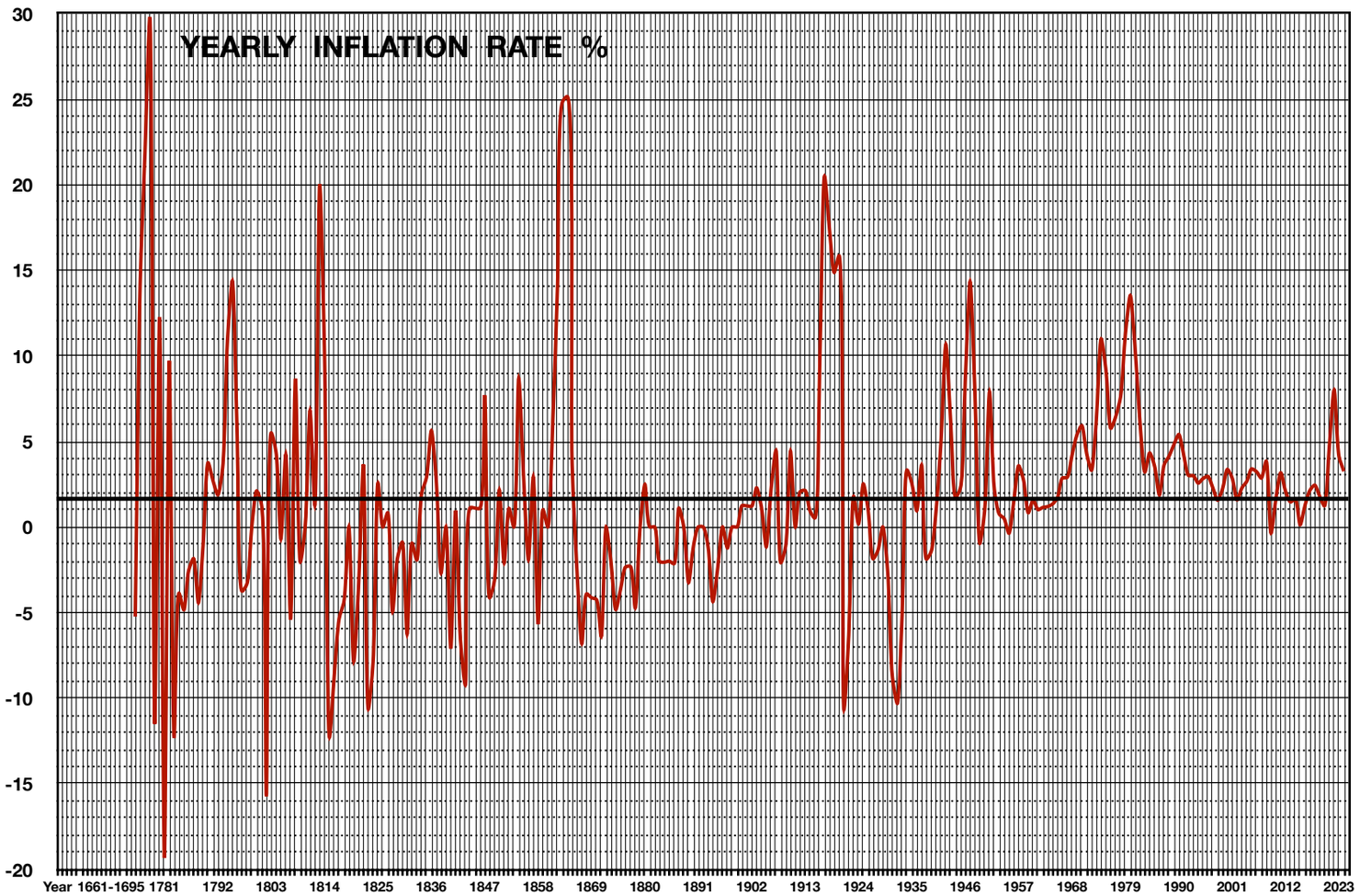

Nominal (actual) US GDP in millions of $. 1790-2024
30,000,000
25,000,000
20,000,000
15,000,000
10,000,000
5,000,000
0
Year 1661-1695 1781 1792 1803 1814 1825 1836 1847 1858 1869 1880 1891 1902 1913 1924 1935 1946 1957 1968 1979 1990 2001 2012 2023

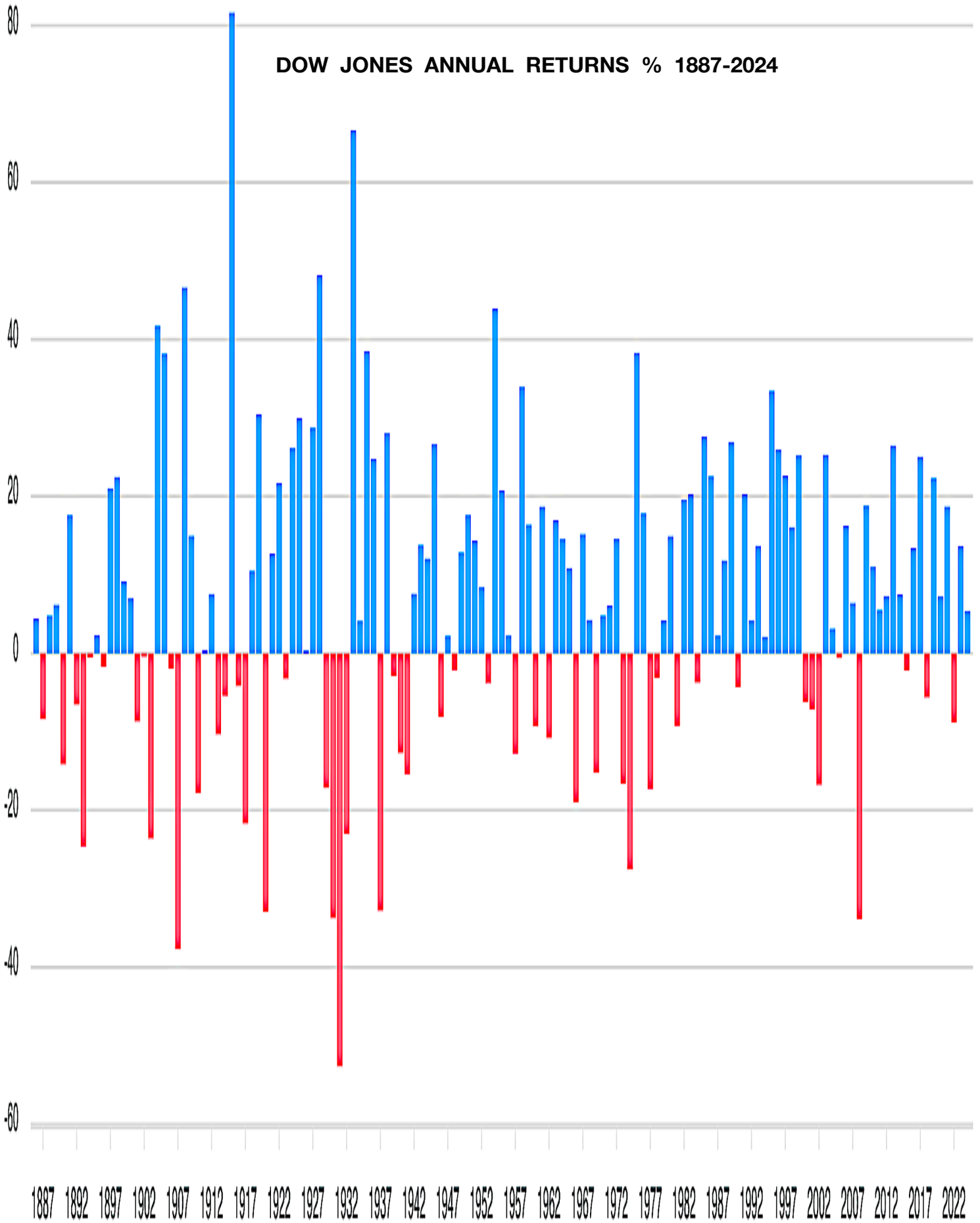

Nominal (actual) LOG US GDP in millions of $. 1790-2024
100,000,000
10,000,000
1,000,000
100,000
10,000
1,000
100
Year 1696-1698 1783 1795 1807 1819 1831 1843 1855 1867 1879 1891 1903 1915 1927 1939 1951 1963 1975 1987 1999 2011 2023

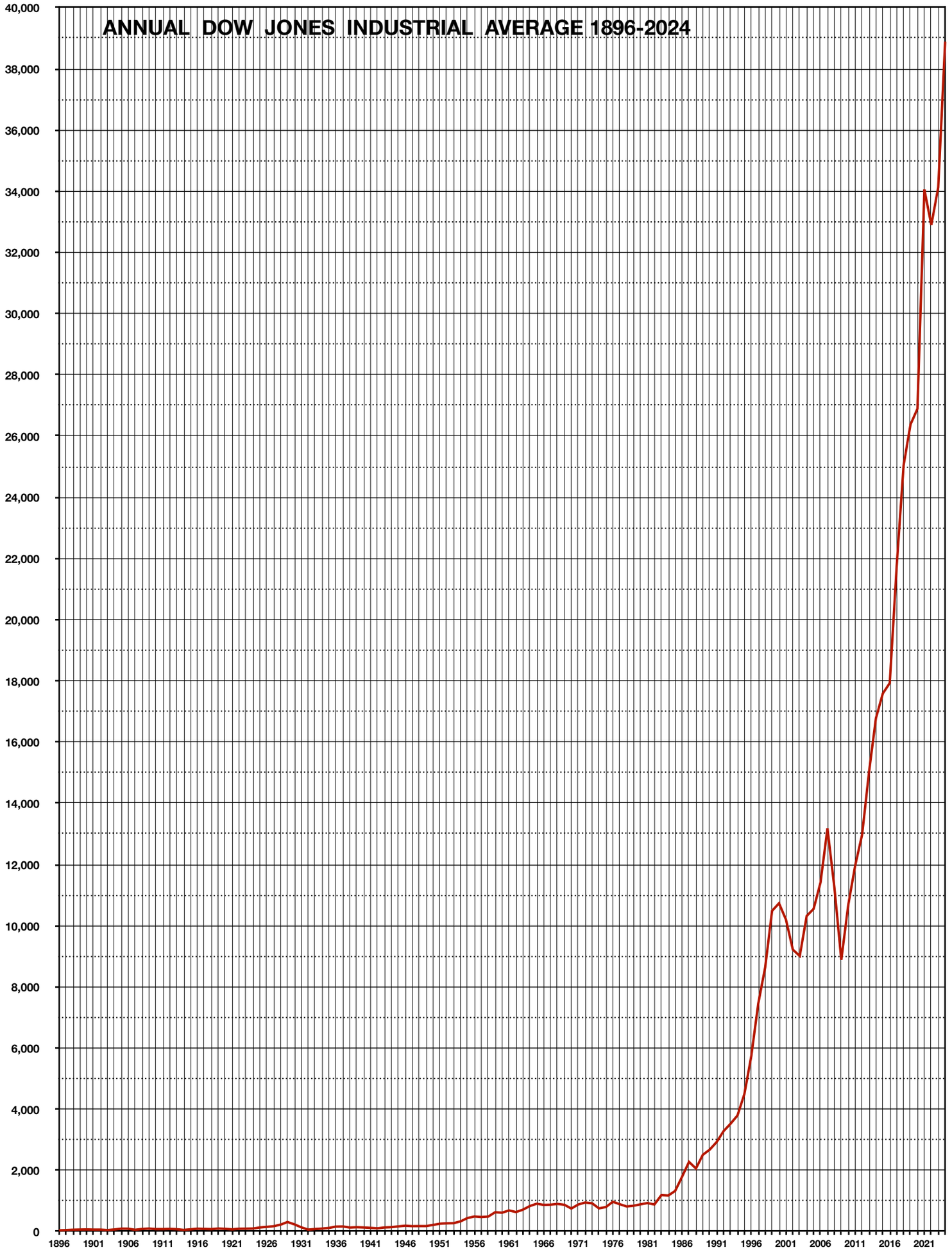

US POPULATION 1790-2024
400,000,000
350,000,000
300,000,000
250,000,000
200,000,000
150,000,000
100,000,000
50,000,000
0
Year 1661-1695 1781 1792 1803 1814 1825 1836 1847 1858 1869 1880 1891 1902 1913 1924 1935 1946 1957 1968 1979 1990 2001 2012 2023

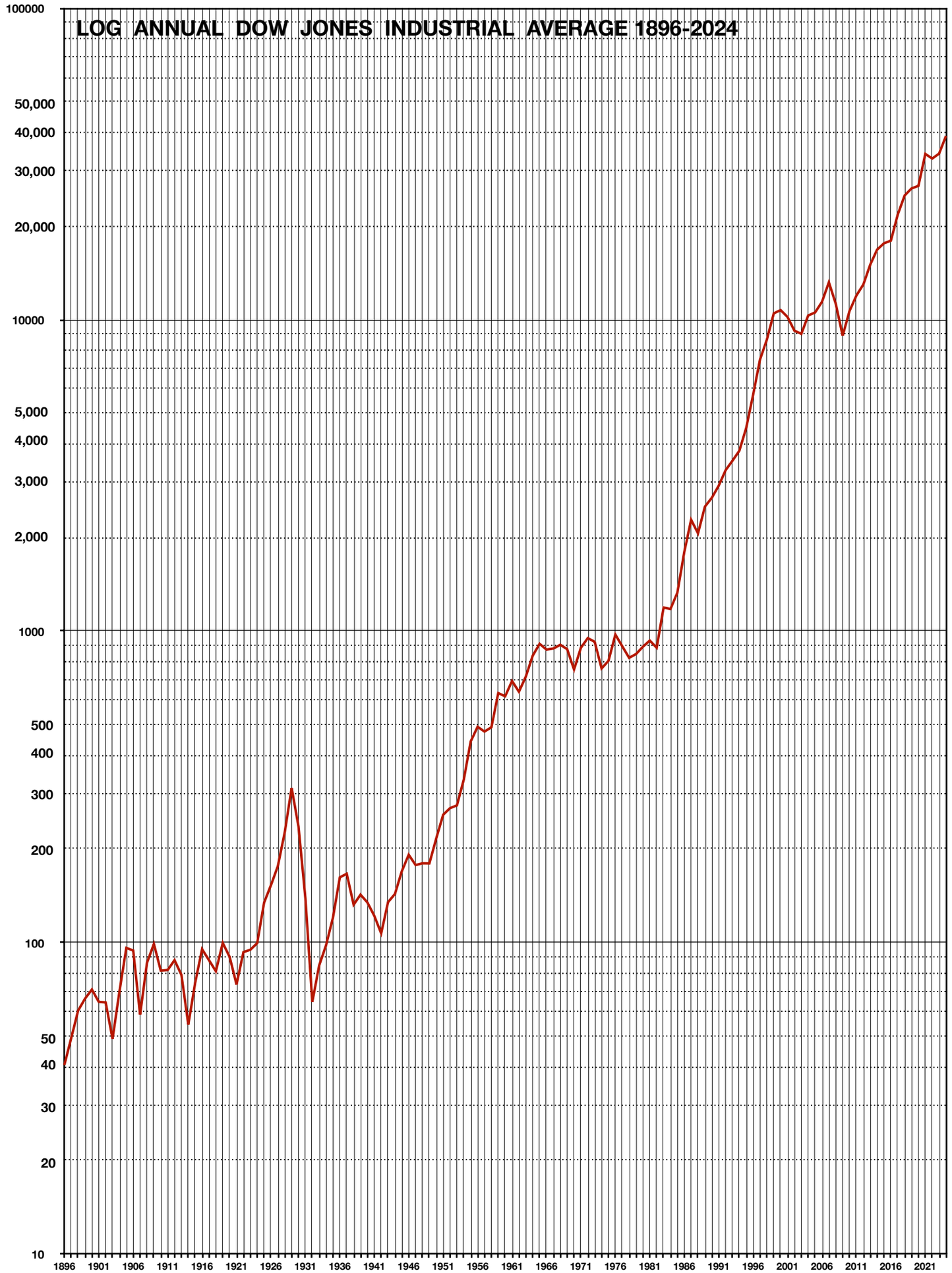

LOG US POPULATION 1790-2024
1,000,000,000
100,000,000
10,000,000
1,000,000
Year 1696-1698 1783 1795 1807 1819 1831 1843 1855 1867 1879 1891 1903 1915 1927 1939 1951 1963 1975 1987 1999 2011 2023


RATIO VALUE OF OZ SILVER : OZ GOLD
100
90
80
70
60
50
40
30
20
10
0
Year 1661-1695 1781 1792 1803 1814 1825 1836 1847 1858 1869 1880 1891 1902 1913 1924 1935 1946 1957 1968 1979 1990 2001 2012 2023

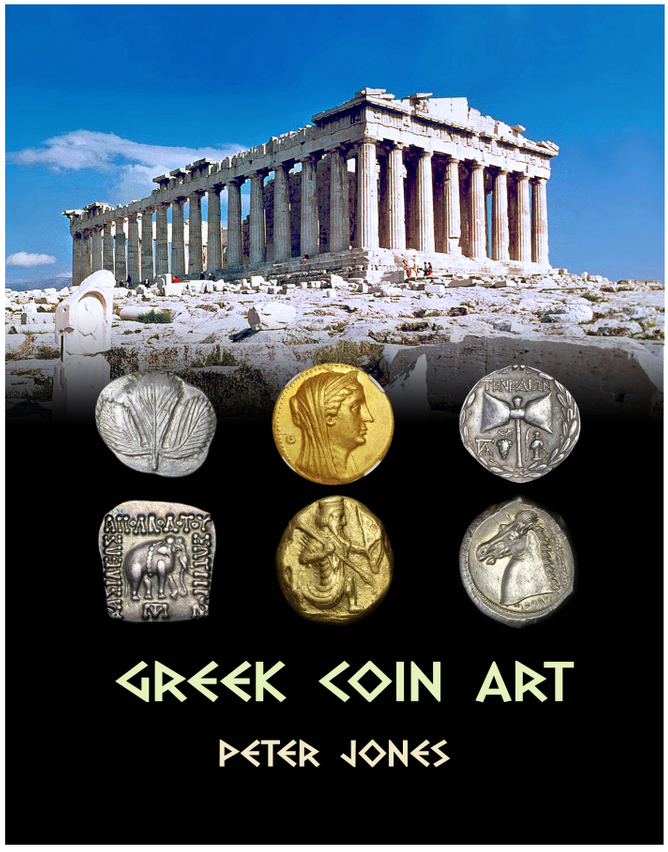

YEARLY INFLATION RATE %
30
25
20
15
10
5
0
-5
-10
-15
-20
Year 1661-1695 1781 1792 1803 1814 1825 1836 1847 1858 1869 1880 1891 1902 1913 1924 1935 1946 1957 1968 1979 1990 2001 2012 2023


DOW JONES ANNUAL RETURNS % 1887-2024
80
60
40
20
0
-20
-40
-60
1887
1892
1897
1902
1907
1912
1917
1922
1927
1932
1937
1942
1947
1952
1957
1962
1967
1972
1977
1982
1987
1992
1997
2002
2007
2012
2017
2022


ANNUAL DOW JONES INDUSTRIAL AVERAGE 1896-2024
40,000
38,000
36,000
34,000
32,000
30,000
28,000
26,000
24,000
22,000
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
1896
1901
1906
1911
1916
1921
1926
1931
1936
1941
1946
1951
1956
1961
1966
1971
1976
1981
1986
1991
1996
2001
2006
2011
2016
2021


LOG ANNUAL DOW JONES INDUSTRIAL AVERAGE 1896-2024
100000
50,000
40,000
30,000
20,000
10000
5,000
4,000
3,000
2,000
1000
500
400
300
200
100
50
40
30
20
10
1896
1901
1906
1911
1916
1921
1926
1931
1936
1941
1946
1951
1956
1961
1966
1971
1976
1981
1986
1991
1996
2001
2006
2011
2016
2021

OTHER BOOKS BY PETER JONES Website: booksoncoins.com



Foreword by Robert Hoge

One day, while attending a coin show in New York City, a dealer recognized me and asked me what I collected. I told him I did not know, but those marvelous 2,000-year-old pieces of silver were masterpieces of ancient sculpture. “Ah!” he said, “Art on coins!” I ended up learning about the fascinating world of ancient Greece, their endemic warfare, their philosophy, and their life.

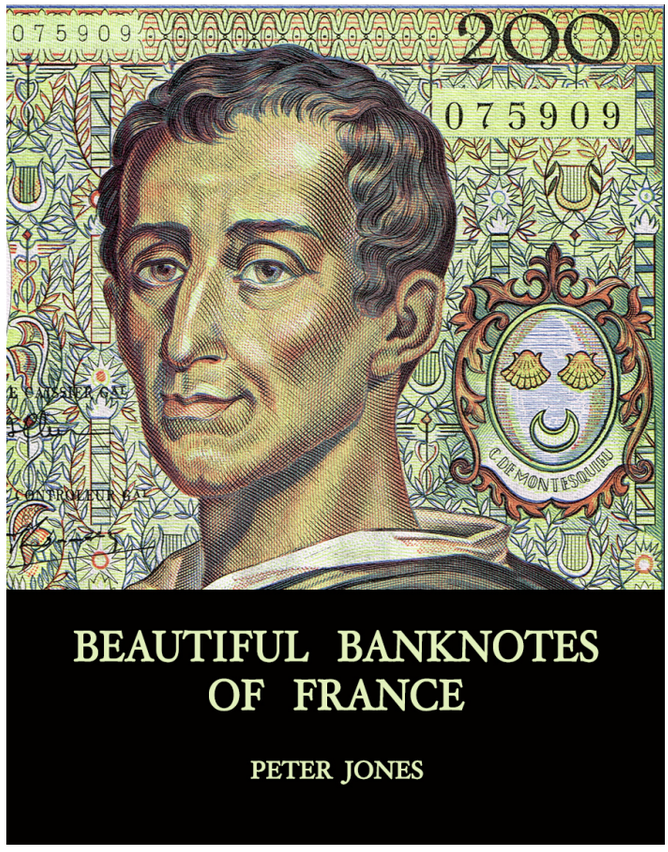
The book shows many of the commonest available Greek coins as full page color pictures. The layout is mainly a full page coin photograph on one page with the history behind it on the page opposite. It starts with the “grand tour” (the way collectors classify the different parts of the ancient Greek world), denominations, and pay in ancient times.

COMMENTS BY ROBERT HOGE, Curator Emeritus, American Numismatic Society
“… A charming *tour de force* succinctly exploring the entire field of ancient Greek Numismatics. The book contains a glossary of terms and a complete index and bibliography — somewhat unusual in such a handsome volume that many would regard as a kind of “coffee-table book”. I firmly believe that anyone having a chance to pass time with this book will come away feeling amply rewarded”.

Chapters cover:
Non-Greek Europe; Southern Italy and Sicily; Macedonia; Thrace, Thessaly, Central Greece, and the Peloponnese; Crete; Asia Minor (present-day Turkey); Cyprus and the Levant; The Achaemenids (ancient Persia); The Seleukid Empire; The Parthian Empire; Greco-Baktrians; Indo-Greeks; Ptolemaic Egypt

The glossary includes a classification of divine beings, a list of gods, allegories and their attributes, mythical animals, weight standards, ancient Greek tribes, and ways to collect Greek coins.

- 372 pages
- 148 full-page coin photographs
- Hardback 8.5 by 11 inches
- Copyright 2025
- Go to booksoncoins.com for more details and direct link to buy at BookBaby, still in production early 2025 — price to be determined.



Foreword by John Ferreri

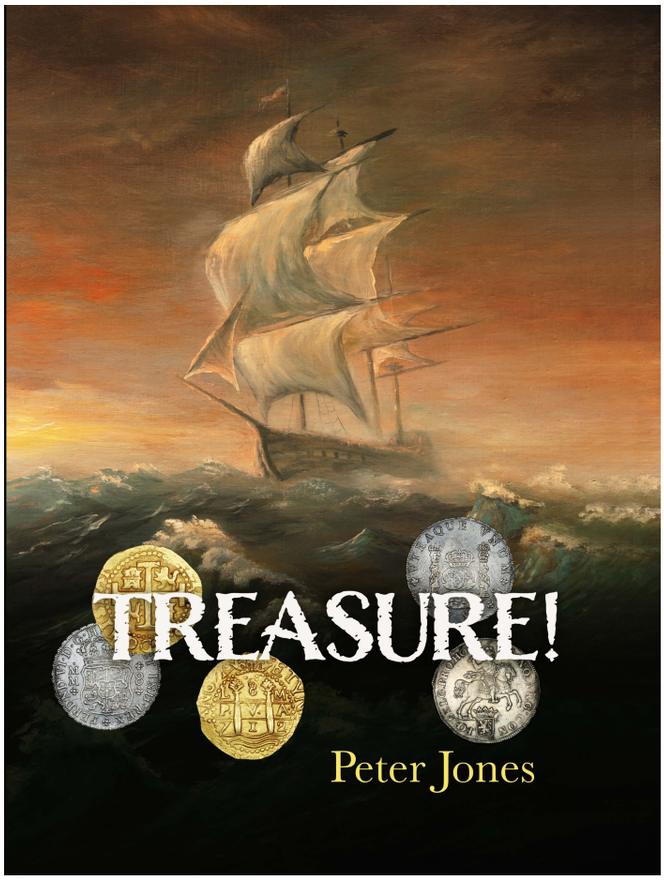
(Taken from E-Sylum) Peter Jones has written a new book; this one is on the banknotes of France. The book shows the art and stories behind fifty of the most beautiful banknotes ever produced. Called the "French touch,” France printed the notes during the 1900s. The author provides full page photos of each note with details of the designer and the meaning behind the designs, with fascinating biographies and details of history and economics that the note design points to.

An introductory chapter gives a brief history of paper money, the Mississippi bubble, and paper money during the French Revolution. The remaining seven chapters describe the notes, complete with tables, graphs, glossary, and index. Starting on page 24, the format is a picture of the banknote on the right with a one-page story about the note on the left.

The glossary lists Olympian gods, genealogy of gods, other allegories, mythical animals, actual women on French banknotes, list of banknote designers, Prix de Rome prizewinners, timeline, and printing techniques.

Peter adds,"I have always found the banknotes of France in the 1900s to be the most beautiful in the world and asked several dealers if there was a name for the style. But I always seemed to draw a blank. So, I started collecting them and then wrote about them. I later found out the name I was looking for — ‘The French Touch.’”

- 149 pages, profusely illustrated with color photos
- 51 full-page color note photographs
- Hardback 8.5 by 11 inches
- Copyright 2023
- Go to booksoncoins.com for more details and direct link to purchase at BookBaby. Price $49.



Foreword by Daniel Frank Sedwick

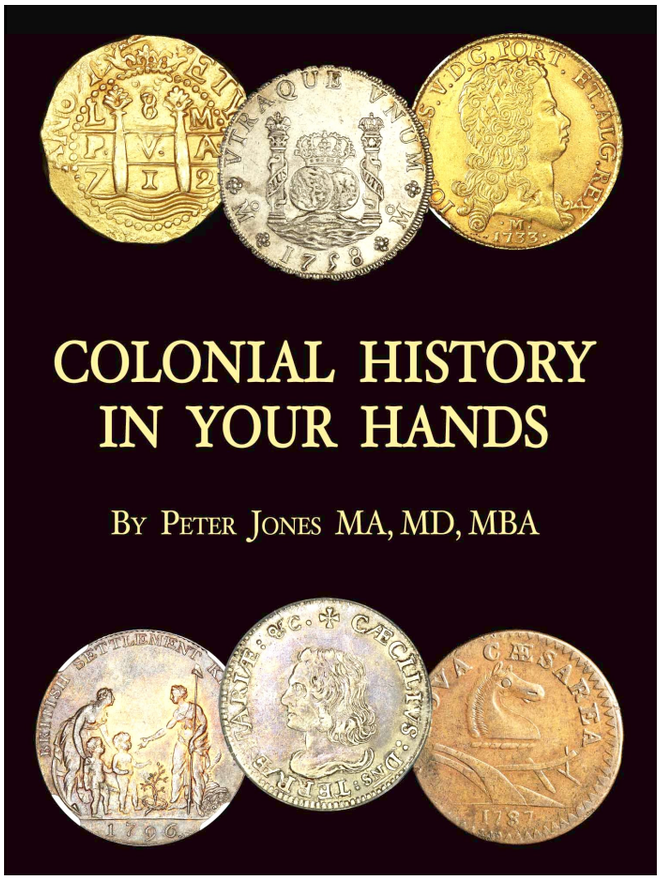
SEVEN CHAPTERS

- **In the Beginning:** history of money, Spanish New World, Potosi mining and minting, the Flota system, Dutch East India Company, history of diving, the Silk Road, history of ships, finding shipwrecks, politics of salvage.
- **Spanish shipwreck stories**
- **Dutch shipwreck stories**
- **British shipwreck stories**
- **American shipwreck stories**
- **Other nationality shipwreck stories**
- **Captured ships and other stories**
- **Glossary:** points about shipwrecks, ship prefixes, types of ships, difference between boats and ships, Spanish colonial cob identification guide, colonial rulers, money systems and weights, Mexican, English and French metrology, US GDP, population, and labor costs from 1790 to 2017, viceroyalties.

Intended for treasure and coin collectors, history buffs, nautical enthusiasts, and divers, *TREASURE!* puts the fascinating subject of treasure coins into historical perspective. The book tells the stories of 75 coins and medals associated with shipwrecks.

Peter has created this masterful book, a veritable Handbook for Treasure Collectors. Just about every treasure wreck is here.

- 398 pages, profusely illustrated with color photos
- Full-page color photographs of 75 shipwreck coins and medals
- Hardback 8.5 by 11 inches
- 4,800 word index
- Copyright 2022
- Go to booksoncoins.com for more details and direct link to purchase at BookBaby. Price $99. Apply code TWENTY OFF to get it for $79.



Foreword by John Kraljevich

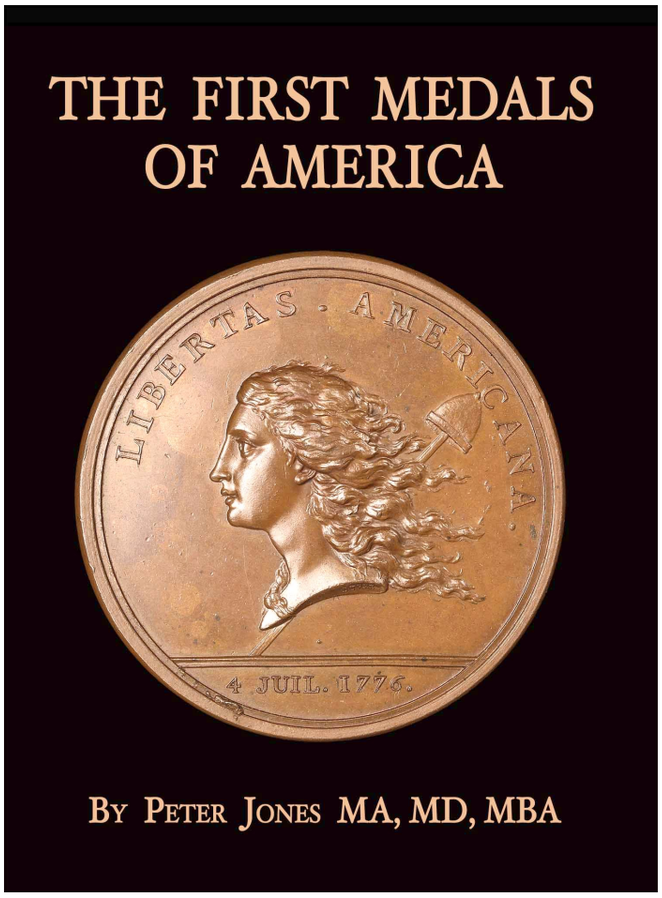
Colonial History in Your Hands is about colonial American coins. A lifelong collector, Jones explores different classification systems of colonial coins, then gives the fascinating stories behind each coin with up-to-date scholarship on the current thoughts about each series.

THIRTY-ONE CHAPTERS

British Royal Authorized Coins: Baltimore, Holt, Rosa, Hibernia, Regal, Virginia
French Royal only for colonies: Gloriam Regni, 9 denier, stampees, sou, Cayenne
French Royal Domestic Export for colonies: mousquetaires, sous marqués, John Law, Le Chameau
Locally made tokens and coins: Massachusetts silver, Higley, Maryland silver
Imported Tokens: Newby, Voce Populi, Pitt, Rhode Island Ship, Bar Copper
State Coppers
Proposed & Actual Federal
Optional colonial collectables Washingtonia, Condor, Commodity money, Trade coins, Coins that should not be in Red Book, Little used pieces, 1776 Journals of Continental Congress list of coins
Classification, Glossary, Metrology. Bibliography.

If you have any interest in colonial American history, colonial American coins, or numismatics in general, this reference book is eminently readable and a must for your collection.

- 597 pages, profusely illustrated with color photos
- 300 full-page color coin photographs
- Hardback 8.5 by 11 inches
- 1,900 word index
- Copyright 2020
- Go to booksoncoins.com for more details and direct link to purchase at BookBaby. Price $149. Apply code SIXTY OFF to get it for $89.



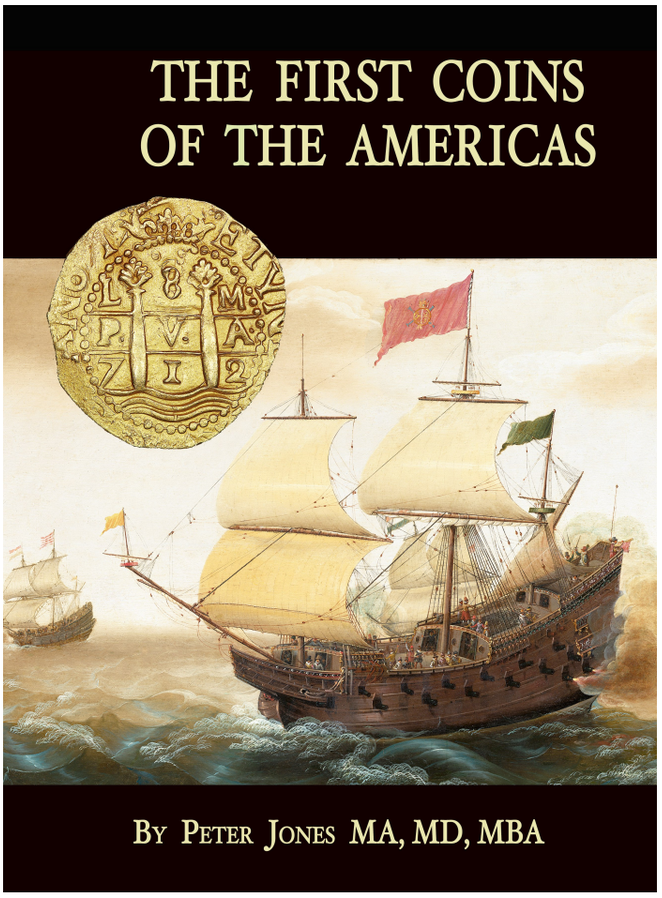
Foreword by Neil Musante

This book describes America's first medals. They were not just your local county fair medals. They were a labor of love for the founding fathers (especially Franklin and Jefferson) to award distinguished patriots for risking their lives. War is not glamorous; it is disgusting, violent, and bloody. Many died, but the founding fathers wanted to ensure their bravery was not forgotten. These medals are some of the most precious symbols of the birth of a new America. They are the birth of American numismatics.

But they had an extended gestation. All but one of the medals were born before the US Mint began. The Continental Congress awarded each to courageous warriors for valor. Each medal involved an Act of Congress — before Congress produced standardized medals. Each medal has its own story. As they say in Law and Order — "these are their stories".

(From Neil Musante) Now, with the publication of Peter Jones's wonderful book on the subject that includes, for the first time, numismatic information on the various restrikes, electrotypes and copies. This book completes the Pentateuch (Loubat, Betts, Adams/ Bentley, Kraljevich, Jones). Peter is English and offers a really fun perspective on the subject. I enjoyed reading his work and learned a great deal from it. I can only say thanks to Peter for writing such an erudite, fun and concise guide to these medals. His perspective is brilliant and I will refer back to this book at least as often as I do to the others!

- 100 pages, profusely illustrated with color photos
- 26 full-page color medal photographs
- Hardback 8.5 by 11 inches portrait format
- Copyright 2020
- Go to booksoncoins.com for more details and direct link to purchase at BookBaby. price $39. Apply code TENOFF for $29 net.



Foreword by Dan Sedwick

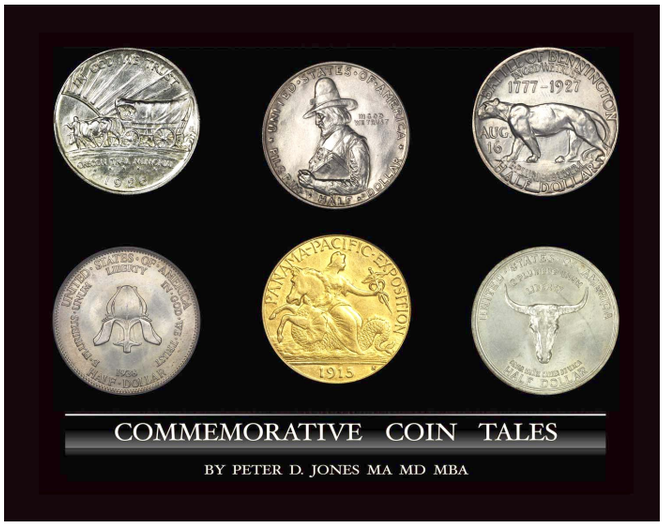
The First Coins of the Americas describes the author's personal journey with Spanish colonial coins called cobs. The first mint of the Americas opened in Mexico City in 1536. A lifelong collector, Jones explores the background of the conquistadors and the Spanish colonial system. He then gives the fascinating stories behind each coin with up-to-date scholarship on current thoughts about each series.

Sections include: Spanish coinage before the New World; Mexican money before the first mint of 1536; Carlos and Juana Early and Late series precobs coinage; Santo Domingo and Lima precobs; A type collection of silver and gold cobs by mint: Mexico City, Lima, La Plata, Potosí, Panama, Bogotá, Cartagena, Cuzco and Guatemala. Extensive references are given throughout.

The book finishes with why they made cobs, cobs as collectibles, mint expenses, the mining process at Potosí, the fleet system used by the Spanish, and the New World class systems.

An 11-page glossary lists all the assayers and dates of each colonial mint, updated by Dan Sedwick from his 2007 *Practical Book of Cobs*. The glossary also includes Spanish monarchs, listings of the mints, colonial administrators, viceroyalties, audiencias, matronymic naming, styles of cobs, metrology and complete index. If you have any interest in Spanish colonial history, Spanish colonial coins (cobs), or numismatics in general, this reference book is eminently readable and a must for your collection.

- 250 pages, profusely illustrated with color photos
- 129 full-page color coin photographs
- Hardback 8.5 by 11 inches
- Copyright 2021
- Go to booksoncoins.com for more details and direct link to purchase at BookBaby. Price $79.



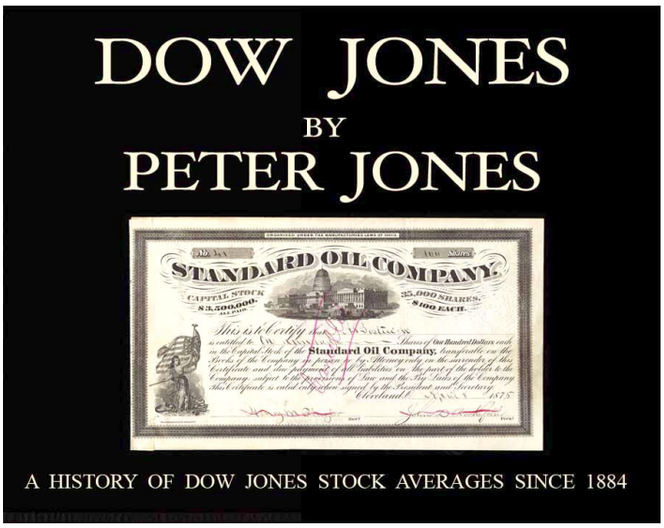
Foreword by Ken Bressett

This book explores the history behind 72 classic commemorative US coins — the sculptors, the promotors, the politicians and the history. Each vignette is a fascinating four-page night-time read.

TEN CHAPTERS

- Why do we collect?
- Brief history of commemorative coins
- 10 cities commemorated
- 3 Civil War commemoratives
- 5 coins about 4 expositions
- 14 historical coins
- 5 coins about people
- 12 coins about states
- Gold commemorative coins
- Quasi-commemorative coins

- 372 pages, profusely illustrated with color photos
- 74 full-page color coin photographs
- Hardback 8.5 by 11 inches landscape format
- Copyright 2019
- If interested, please email Peter on his website, booksoncoins.com Price $79.



Foreword by Max Hensley

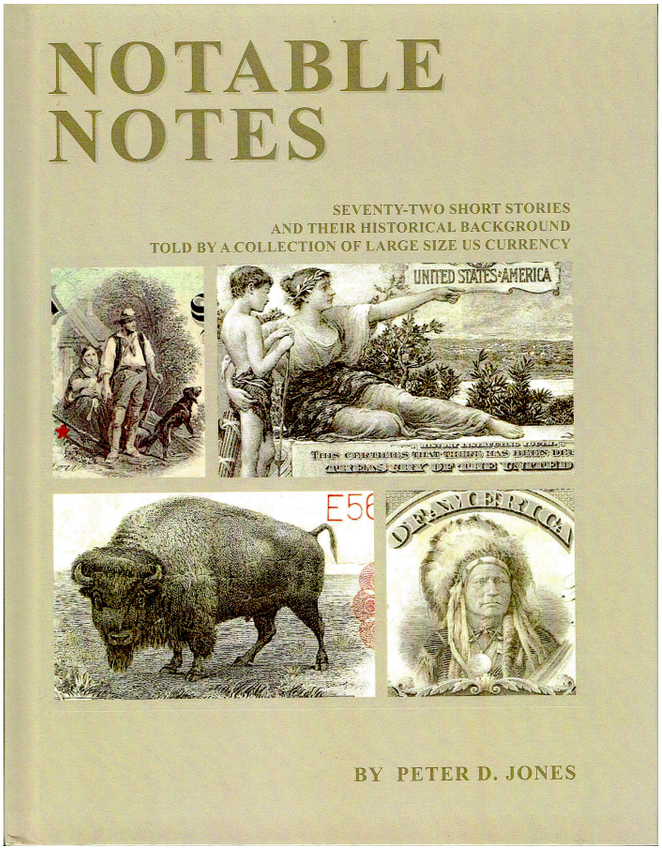
This book talks about the birth of American business. It tells the stories behind the first companies that formed the Dow Jones average in 1884, the DJIA, when it went from 11 to 12 stocks in 1896, then to 20 stocks in 1916, then to 30 stocks in 1928. Also included are the 30 longest lasting of all DJIA stocks and the largest 10 stocks in 2020.

Includes 91 full-page illustrations of old stock certificates, often with historical vignettes describing the business. Collecting stock certificates is called scripophily — a fascinating window into the history of business. MBAs today seldom study the history of business. But that is to their detriment; those who ignore the mistakes of history are destined to repeat them!

EIGHT CHAPTERS

- What is scripophily?
- Dow Jones and its averages
- 1884 first transport average, describes 11 stocks
- 1896 first industrial average, describes 12 stocks
- 1916 second DJIA, describes 20 stocks
- 1928 third DJIA, describes 30 stocks
- Thirty longest surviving DJIA stocks
- Ten largest US companies

- 350 pages, profusely illustrated with color photos
- 85 full-page color photographs
- Hardback 8.5 by 11 inches landscape format
- Copyright 2020
- Price EUR 97.50, plus mailing costs from Germany of approximately $25.
- If interested, please email joerg.Benecke@historische-wertpapiere.de Or michael.weingarten@t-online.de



Foreword by Wendell Wolka

Seventy-two short stories and their historical background told by a collection of large-size US currency. The complex history of the beginnings of today's bank notes simply laid out.

Peter enjoys the subject and has used his curiosity and intellect to weave together a wonderful set of stories, history lessons, and little-known facts based on seventy-two "notable notes" which he has selected.

(From Wendell Wolka) This well-illustrated book is an easy read which will leave you knowing more than before you read it, whether you are brand new to paper money or a veteran "rag picker." And that, after all, is what numismatics is all about: sharing information with others so that we can collectively build the foundation of knowledge for both present and future generations of collectors.

- 383 pages, profusely illustrated with color photos
- Many full-page color pictures of notes and engravings
- Hardback 8.5 by 11 inches portrait format
- Copyright 2010, second edition 2020
- Price $129.95 hardcover, $115.95 paperback, $29.95 e-book
- To purchase hardcover, softcover or e-book, please visit: artsandacademic.net/e-publications.php then click on Academic books
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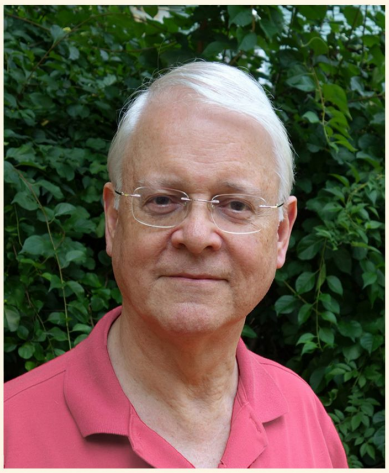

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